DOCUMENT RESUME

ED 146 456 CE 013 873

AUTHOR Stone, Thomas; And Others
TITLE Vocational Education: A New Dimension for the Gifted and the Talented Students. A Vocational Teacher's Resource Guide.
INSTITUTION South Dakota Univ., Vermillion. Educational Research and Service Center.
SPONS AGENCY Bureau of Occupational and Adult Education (DHEW/OE), Washington, D.C. Curriculum Development Branch.
PUB DATE 76
CONTRACT 300-76-0306
NOTE 86p.; For related documents see CE 013 871-874

EDRS PRICE MF-$0.83 HC-$4.67 Plus Postage.
DESCRIPTORS *Career Education; *Gifted; *Individualized Instruction; Occupational Guidance; Student Characteristics; *Talented Students; Teaching Guides; *Teaching Techniques; *Vocational Education

ABSTRACT

Focus in this resource guide for secondary and postsecondary vocational teachers is on individualizing programs and courses to provide for the unique interests and abilities of gifted and talented students. An overview is presented of the status of vocational education and how it can enhance the occupational development of gifted youth. This is followed by discussion of learning characteristics of gifted children and their identification, placement, and programming. Utilization of the fifteen occupational clusters set forth by the U.S. Office of Education is emphasized throughout as an aid in the search of potentially satisfying jobs and educational and occupational ladders for the gifted. Topics addressed under curriculum and instruction for the gifted and talented include instructional alternatives, individualized instruction, an enrichment model, differentiated instruction, and program modifications. Under the heading of program administration are guidelines for shaping a gifted program and notes on the role of the vocational teacher with the gifted. Five program descriptions are presented as examples of those which could attract and hold the interest of gifted and talented students. Case studies of students who exhibited outstanding potential and took part in vocational preparation programs are also included. Each differs in the time in the student's life-occupation when the training occurred. A list of professional organizations for further reference and an annotated bibliography are appended. (JT)

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# VOCATIONAL EDUCATION

# A NEW DIMENSION FOR THE GIFTED AND THE TALENTED STUDENTS

## A VOCATIONAL TEACHER'S RESOURCE GUIDE

by

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U S DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

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Graphic Arts

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Mr. Larry Baker

CE 013 873

Published by
Educational Research and Service Center
School of Education
University of South Dakota
Vermillion, South Dakota
–1976–

Developed and disseminated pursuant to
Contract No. OEC-3007E306

for

Curriculum Development Branch
Division of Research and Demonstration
Bureau of Occupational and Adult Education
U.S. Office of Education
Department of Health, Education and Welfare

under

Part I
Curriculum Development in
Vocational and Technical Education
Vocational Education Amendments of 1968
Public Law 90-576

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# FOREWORD

This **Resource Guide** is an expanded and updated version of the materials available in three professional areas involved in the Vocational Preparation of Gifted and Talented Students in Secondary and Post Secondary Education, namely Vocational Education, Guidance and Counseling and Gifted Education. The materials related to Career Education, which is a concept that directly involves all three areas, are also utilized, particularly as they apply to the preparation phase. The **Guide** is not inclusive and is designed to be used as a "starter kit" that the vocational educator, hopefully, will continue to develop with additional materials.

Developed under Contract OEC-300760306 for the Bureau of Occupational and Adult Education, U.S. Office of Education, the **Vocational Teacher's Resource Guide** attempts to give the vocational instructor information on working with the gifted and talented student which involves:

* identification and screening of gifted and talented students
* utilizing the 15 Occupational Clusters in the search of potentially satisfying jobs for the gifted
* developing differentiated instructional programs to meet the unique interests, needs and goals of the gifted and talented student
* working with other staff members and community mentors in enrichment activities
* exploration of information and resources available on gifted education.

Because the **Guide** will be made available to other educators, it has been necessary to review the status of vocational education as it is related to secondary and post secondary education. In developing the resource guide, the authors have made several basic assumptions about the vocational educators who will utilize it in working with gifted and talented students. The authors assume that:

* The vocational educator has been trained and is well established as a professional teacher or administrator in vocational education.
* The vocational educator has had fundamental training and practical experience in one or more of the occupational areas treated.
* The vocational educator is knowledgeable of and is capable of planning an individualized instructional unit in skill development at a variety of job levels within an occupational cluster.
* The vocational educator is familiar with a wide range of sources for enrichment and differentiated instruction which relate directly or indirectly to career development in his/her field of expertise.
* The vocational educator recognizes and accepts the fact that there is a wide range of individual differences among students in the developmental and learning processes.

- The vocational educator recognizes and accepts the fact that there are cognitive, affective and psychomotor components involved in all skill development and the gaining of competencies.

- The vocational educator recognizes and accepts the critical fact that gifted and talented students have unique needs, interest, aspirations and abilities which require differentiated programming.

Upon the acceptance of these assumptions it will be possible to make an effort to expand the vocational preparation program options so as to accommodate the gifted and talented students.

The authors realize and accept the fact that there are many factors which make it difficult to provide differentiated program options which are available for exceptional students. This does not, however, diminish the educator's responsibility for making relevant skill development adjustments. The materials presented in this guide have been gathered from a wide range of sources and from the input of many vocational educators to assist in making those adjustments. Working together as a research and writing team has been a rewarding experience and the cooperation received from the many national, regional, state and local vocational educators has been tremendous.

The U.S. Office of Education project officer has been Ms. Frances Hamilton, Program Specialist, Curriculum Development Branch. Dr. Dorothy Sisk, Director of Education for the Gifted and Talented, U.S. Office of Education has been the project monitor.

Dr. Thomas C. Stone,
Project Vocational Coordinator

and

Dr. Bruce G. Milne,
Project Director

October, 1976

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# INTRODUCTION

The forgotten student on the American educational scene today is the gifted and talented student interested in vocational education. There is ample evidence to indicate that both the parents and the educators of students with outstanding abilities direct, counsel and even force them into baccaleaureate programs after completion of high school. For an estimated three to five percent of our school population, who are defined as gifted and talented, the alternative of choosing a life-satisfying career through vocational education has been denied. It is this individual, with a thirst for a blend of the practical and the theoretical that this **Guide** is addressed.

As vocational educators our interests have always been people-oriented, but our programs are individual-centered. Our responsibility as educators has been that of preparing the individual for the world of work by providing him/her with a marketable or salesable skill. The true meaning of democracy supports the concept of the individual being the fundamental unit in the society, and teaching the individual is a sound principle of vocational education. Truly, vocational education has recognized this more than any other segment of our schools.

In a democracy there is a general acceptance of the idea that the individual is of utmost importance and that opportunities should be provided for the optimal development of all. This is the supreme test of any educational system or program. So be it with vocational education. If one accepts such concepts, beliefs and principles, then the purposes and programs of vocational education should be planned and carried out with consideration for the interest and needs of each individual who enrolls. This means there must be diverse programs and methods within our system to meet the diversity of student needs and services.

Our vocational education programs have expanded greatly within the past decade and our educators have met this challenge by providing programs and adapting course offerings to meet the needs of the handicapped, disadvantaged, and culturally different youth. Through the use of individualized-instructional techniques, the programs across our nation have given students of any age an opportunity to learn a skill or gain a wide range of occupational-technical competencies.

If we are to continue to meet the needs of all students, their interests and their abilities, we must endeavor to extend our individualized programs to include those forgotten students, the gifted and the talented. These are students with outstanding abilities who are capable of high performance. Their outstanding abilities are not limited to intellectual and academic excellence. These are students who possess high degrees of ability in creative and/or productive thinking. There are those who are possessed with superior mechanical abilities, and they are the leaders we need in our occupational areas.

Vocational education has the potential of meeting the unique interests, needs and career goals of the gifted and the talented student. Our individualized instructional format and the use of competency-based programs has successfully met the needs of many of these students already. But, if we are to meet their needs fully, we need to provide more enrichment opportunities and differentiate our programs so that the gifted students may enhance the fulfillment of their potential through vocational education.

Vocational preparation of the gifted and talented could not be more timely. The total

number of young people who will enter the labor force is rising rapidly - - far greater than the country has had to educate, train and absorb in employment in the past. Obviously, the better the youth's education and training the better we will be able to cope with many of our national concerns.

Those engaged in the development of our human resources know full well the penalties our society suffers through high unemployment and idle hands. Youth are especailly susceptible to the ranks of the unemployed. The present day rate of approximately 18 per cent of our youth are unemployed and almost one half again this amount for Black youth further points up the problem. Other minority groups face similar situations. These unemployment statistics undoubtedly embrace a substantial number of undiscovered talented youth who could benefit from vocational education.

Education in America today is in a state of transition. The concept of Career Education, whereby all education should be directed toward attainment of self-realization and life-satisfaction, has been readily accepted by the public as well as by educators. All education, both academic and vocational, should be directed toward these ends. And, education, re-education and the updating of training is a life-long process.

What is being proposed throughout this **Guide** is to take another look at the value of vocational education as a "method" or vehicle to inspire the forgotten three to five percent of our student population to capitalize on their talents for high achievement. We are not proposing creation of a "vocational elite" nor the setting forth of special programs for groups of gifted and talented students. Instead, what is being proposed is that we use our basic format of individualized instruction and build-in the potentials for self-realization through enrichment and differentiated programming. This will necessitate change. The related knowledge and applied skills must be presented in a vigorous manner serving to challenge the abilities of the gifted youth if we are to meet their needs, capitalize on their interests and aid them in reaching their life-satisfying goals.

Vocational preparation for the gifted and the talented appears to be a challenge for those who call themselves vocational educators. Appropriate inservice training is needed on how to recognize their characteristics and on how to provide them with an opportunity to contribute more readily to the needs of our society. It is to this end that this **Vocational Teacher's Resource Guide** has been prepared.

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# VOCATIONAL EDUCATION: STATE OF THE ART

Vocational Education is not new to the educational arena. An outgrowth of the changes in education in the late 1800's and of the pioneering by several states in the early 1900's, vocational education is now an identifiable part of our country's education system.

The Vocational Education Amendments of 1968 define vocational educational education as follows:

> "The term 'vocational education' means vocational or technical training or retraining which is given in school or classes (including field or laboratory work and remedial or related academic and technical instruction incident thereto) under public supervision and control or under contract with a State board or local educational agency and is conducted as part of a program designed to prepare individuals for gainful employment as semi-skilled or skilled workers or technicians or subprofessionals in recognized occupations and in new and emerging occupations or to prepare individuals for employment in occupations which the Commissioner determines, and specifies by regulation, to be generally considered professional or which requires a baccalaureate or higher degree; and such term includes vocational guidance and counseling (individually or through group instruction) in connection with such training or for the purpose of facilitating occupational choices; instruction related to the occupation or occupations for which the students are in training or instruction necessary for students to benefit from such training; job placement . . ."

The levels in our educational system where vocational education is offered are also given emphasis through the definition of the term "area vocational school" in the Vocational Education Amendments of 1968.

> "The term 'area vocational education school' means - -
>
> (A) a specialized high school used exclusively or principally for the provision of vocational education to persons who are available for study in preparation for entering the labor market, or
>
> (B) the department of a high school exclusively or principally used for providing vocational education in no less than five different occupational fields to persons who are available for study in preparation for entering the labor market, or
>
> (C) a technical or vocational school used exclusively or principally for the provision of vocational education to persons who have completed or left high school and who are available for study in preparation for entering the labor market, or
>
> (D) the department or division of a junior college or community college or university which provides vocational education in no less than five different occupational fields, under the supervision of the State Board, leading to immediate employment but not necessarily leading to a baccalaureate degree . . .

Although vocational education need not and should not be limited by the scope of the Federal Legislation, we find that the Federal Legislation has significantly influenced the development of vocational education in all states and territories. The central theme throughout all vocational education is that it "prepares the student for employment in a specific occupation." The emphasis is upon the skills and knowledge which the student will need to gain employment (employability) and to advance within the occupation (promotability). Typically, the vocational education program contains little if any of the "liberal arts" preparations common to baccalaureate degree preparatory programs. This concept has been by design, as the vocational program strives to prepare the student for employment in a minimal amount of time. The student may, once he/she is employed, pursue through evening and/or adult education courses those courses that will help to enrich his/her life style.

The urgency of vocational education to prepare students for employment in a relatively short period of time has been emphasized by programs funded through the previous Manpower Development and Training Act and the present Comprehensive Employment and Training Act. Through these acts instructional programs have been designed to prepare the student for employment in 12 months or less.

Vocational education received its first major thrust following the passage of the Smith-Hughes Act in 1917. For many years the vocational offerings were found primarily at the high school level. The late 1950's and early 1960's brought about a change with the increased emphasis upon vocational education at the 13th and 14th years (post-secondary.)

In the late 1960's and early 1970's the Career Education concept evolved. It is defined by Dr. Ken Hoyt (1972) as: "the total effort of public education and the community aimed at helping all individuals to become familiar with the values of a work-oriented society, to integrate these values into their personal value system, and to implement these values into their lives in such a way that work becomes possible, meaningful, and satisfying to each individual."

Career education is a concept that permeates all of education. Emphasis is placed upon career awareness during grades K-6, career exploration during grades 7-10 and career preparation during grades 11 and above. Vocational education contributes to the career preparation phase of the career education concept. Thus, all of vocational education could be classified as career education but not all career education is vocational education.

## An Overview of Vocational Preparation Programs

Career preparation programs today are seen as an essential part of any student's educational program for self-realization. Vocational education is neither separate from nor superflous to academic training. Both augment each other in a total process referred to as life-career preparation.

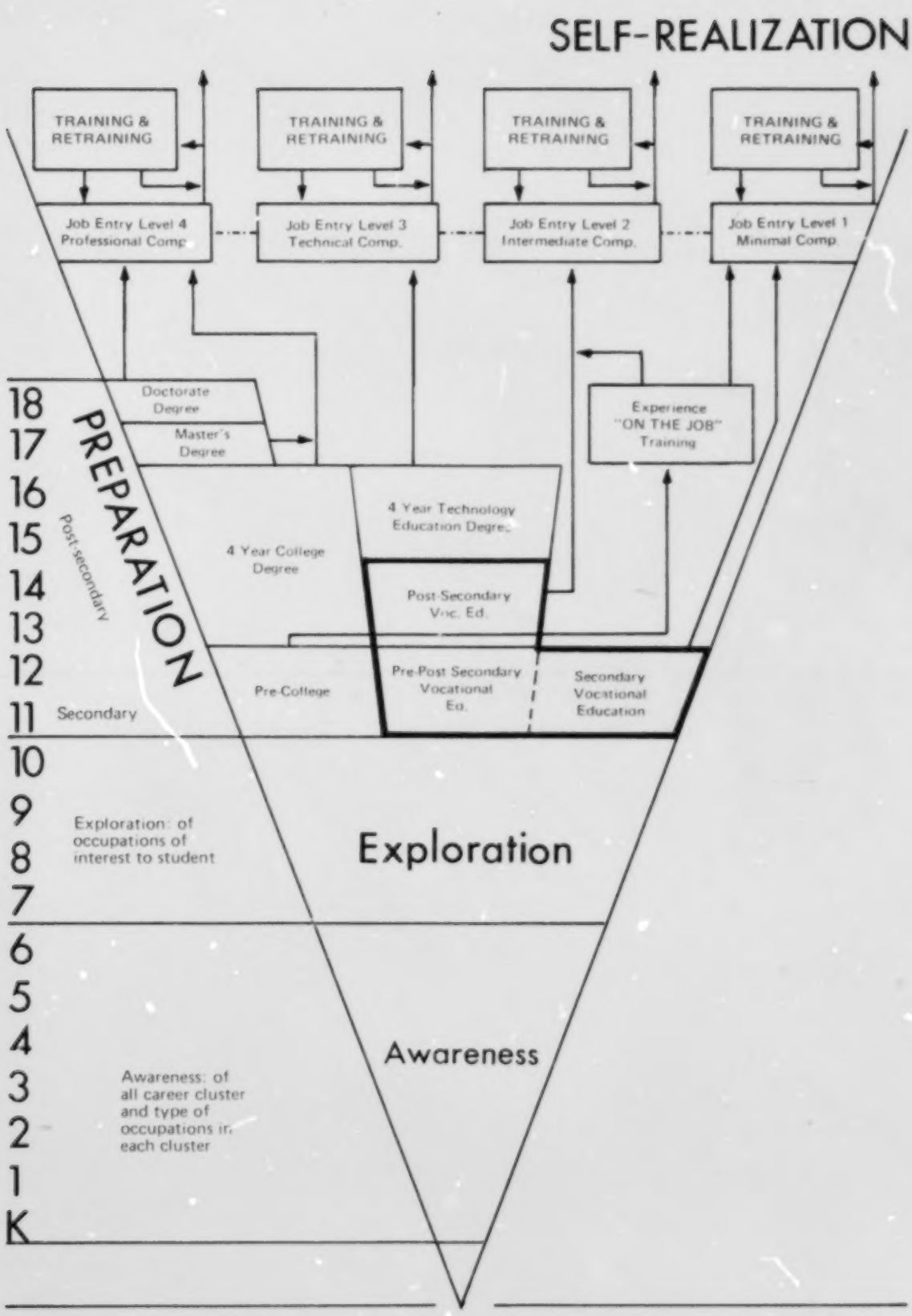
Although there are still segments of the population who are unaware of the life-career development concepts which have been integrated into the public school curriculum, the academic/vocational blend has been widely accepted. Similarly, the concept of education as a lifelong and life-fulfilling process has received support from the public as well as in educational circles. In simple terms, education is not merely a preparation for life; education, re-education and educational up-dating are part of living itself.

Vocational Education is one of the educational alternatives within the total educational system. There has been a rapid expansion of vocational and technical education during the past few years. Further, professional educators predict that during the latter part of the 1970's and early 1980's the number of vocational technical education courses and programs in schools will increase faster than any other courses or programs. It is estimated that by the year 1980 only 20 percent of jobs will require a baccalaureate degree as entry level preparation. This estimate adds impetus to the vocational education movement. Furthermore, preparation in such courses as math, English, science and social studies will be designed to augment occupational preparation.

In projecting the life-style of our present school population for the year 2000, it is apparent that life-career planning must include a broad-based educational program. That broad-based education must provide the student with the necessary knowledges and skills to live in a society that includes both a world of work and a world of leisure.

The U.S. Department of Labor estimates that by the year 1980 only two jobs out of 10 will be available to people with little or no occupational training. As the nation responds to problems such as new sources of energy, better environmental control, greater space utilization, increased need for food production and more productive use of leisure time, there will be a more pronounced need for an educated populace.

Vocational preparation is today a substantive part of the entire school program, and will be more so in the future. The graphic on the following page illustrates the educational process from pre-school to that abstract point of Self-Realization or life-satisfaction. Included in the diagram are both the academic and vocational education training components following


SELF-REALIZATION
TRAINING & RETRAINING
TRAINING & RETRAINING
TRAINING & RETRAINING
TRAINING & RETRAINING
Job Entry Level 4 Professional Comp.
Job Entry Level 3 Technical Comp.
Job Entry Level 2 Intermediate Comp.
Job Entry Level 1 Minimal Comp.
18
17
16
15
14
13
12
11
10
9
8
7
6
5
4
3
2
1
K
PREPARATION
Post-secondary
Secondary
Doctorate Degree
Master's Degree
4 Year College Degree
4 Year Technology Education Degree
Post-Secondary Voc. Ed.
Pre-College
Pre-Post Secondary Vocational Ed.
Secondary Vocational Education
Experience "ON THE JOB" Training
Exploration: of occupations of interest to student
Exploration
Awareness: of all career cluster and type of occupations in each cluster
Awareness

the career education concept. This diagram indicates, that all students progress through the awareness and exploratory phases together. At the secondary preparation level the students now choose between alternative routes to lead to employment. The student's decision should be based upon his/her interest, abilities, desires, and goals. It should not be a decision based on "I don't believe I can make it through a given route so I will try another." Each route is a viable alternative that each student must consider.

Particular attention should be paid to the secondary and post-secondary grade levels of 11 through 14. At this level Vocational Education is a separate and distinct vocational preparation program. The complex maze of academic and occupational training at the post secondary level merely illustrates the alternatives available on a "mix and match" basis.

The ultimate goal of life-career planning in the school is to allow and insure that each student can at any point direct or redirect his/her educational program toward any of the four job entry levels:

Job entry level #1 requires minimal competencies.

Job entry level #2 requires intermediate competencies with some post-secondary job training.

Job entry level #3 requires technical competencies with post-secondary training of two or more years.

Job entry level #4 requires professional competencies, presumably with a baccalaureate degree or more.

The squares beyond job entry at the top of the illustration indicate the necessity of further training, re-training or up-dating of skills in all categories. Education is a life-long process.

## Types of Vocational Programs

Several types of vocational education programs are utilized in education today in connection with worker preparation programs. Some of the more commonly used are defined briefly:

**Adult Education** - - applies to public school programs offered to out-of-school youth and adults. It may include occupational preparation classes, classes for upgrading and updating skills or competencies, and classes for retraining.

**Apprenticeship Programs** - - are programs which are employment-based with related instruction provided to the full-time employee in addition to the work week. These usually require 40 hours of work per week and 144 clock hours of instruction per calendar year.

**Cooperative Education Programs** - - are programs which are education-based with related instruction provided as a part of the student's in school program. Students are typically released from school for on-the-job experience which provides an opportunity to apply what is learned in school. Credits for cooperative work experience are applied toward completion of the student's educational program.

**Comprehensive Employment and Training Act Programs** - - are vocational training given to the unemployed for the purposes of providing them with minimal employability skills.

**Inschool Preparatory Program** - - is a course offered as part of the student's secondary education curriculum or as a full-time post-secondary curriculum. The student receives related instruction and laboratory experience which are vital to employability upon completion of the program.

In terms of curricular emphasis, all of the above are related to providing the worker with skills. However, everything in vocational education is directed toward making the student employable and promotable.

Vocational preparation can occur in many types of institutions, both public and private--area vocational-technical schools, technical institutes, junior colleges, vocational-technical high schools, business college, industrial operated training schools, industry-related course work, on-the-job training, and specialized training at colleges and universities.

Vocational Education in this Guide refers largely to those programs operated in the public secondary and post-secondary schools from grades 11-14.

# VOCATIONAL EDUCATION AND THE GIFTED AND TALENTED STUDENT

Vocational opportunities for the gifted and talented are numerous in today's technological society. Many needs must be served, including: reaching energy independence in America, providing adequate health care for Americans, stimulating economic recovery through business and industry, reducing inflation and deficit spending, providing leadership at all levels in government, cleaning up the environment, and satisfying tomorrow's problems.

The gifted and talented person cannot solve, nor be expected to solve, all of society's problems. But, at the same time, he/she must be given the opportunity to grow and learn within our educational system in an effective and satisfying manner. All possible means, educational programs, and concepts must be researched, evaluated, and implemented to allow the gifted and talented person the opportunity to reach a self-satisfying level of achievement.

## Vocational Education, A Viable Educational Alternative

It should be noted that many occupations do not have a lock-step procedure that must be followed to gain admission to employment.

Therefore, several viable alternatives exist in preparing for and entering into a given occupation. The approach a gifted individual might follow could draw upon one or more of the following methods of preparation and/or personal development:

- Adult and continuing education
- Apprenticeship
- Company school
- College
- On-the-job training
- Self-study correspondence
- Vocational Education.

Although all of these methods possess the potential of serving to prepare the gifted and talented for a self-satisfying career, the objective of this Resource Guide is not to differentiate among the various alternatives but to discuss Vocational Education.

Vocational Education is a desirable alternative that can provide meaningful and effective experiences for the gifted and talented person. But it will probably involve making changes in the traditional vocational education program if it is to adequately serve the gifted and talented student. This is true of any educational program used to meet the educational needs of an exceptional student or group of students.

## Who are the Gifted?

If Vocational Educators are to respond to the unique interests, needs and life-career goals of the gifted and talented student, it is essential that such students be defined and subsequently identified in the school. The definition most commonly accepted by educators is that developed by the U.S. Office of Education in 1971. (from Marland)

> Gifted and talented children are those identified by professionally qualified persons who, by virtue of outstanding abilities, are capable of high performance. These are children who require differentiated educational programs and/or services beyond those normally provided by the regular school program in order to realize their potential contribution to self and society.

The abilities, either potential or demonstrated to be included are **general intellectual ability, specific academic aptitude, creative or productive thinking, leadership ability, ability in the visual and performing arts**, and **psychomotor ability** (Martinson, 1974). This definition includes 3 to 5 per cent of the school's population.

Even though this broad definition encompasses a variety of gifts and talents, the number of gifted and talented students in any one institution and/or school district who are interested in a specific vocational program will hardly ever be of significant magnitude to warrant a separate program. Only in the few large institutions will there be enough gifted to warrant classes beyond those offered to the heterogeneous group of students.

Segments of the above definition must be given consideration:

" . . . those identified by professionally qualified person . . ."

" . . . (those) capable of high performance . . ."

" . . .require differentiated programs and/or services beyond those normally provided by the regular school program . . ."

These definitive statements suggest that educators must make program adjustments to accomodate the gifted - - identification, placement and programming.

## Identification of the Gifted and Talented

Identification of the gifted and talented student is not the primary concern of the vocational educator. As stated in the definition, this is usually done by qualified persons who are trained in identification techniques. Through a series of testing, nominating and observing techniques the pupil personnel division of the school identifies and, to some extent, screens the gifted and/or potnetially gifted student. The student is then given guidance and counseling in regard to educational and occupational programs that will enhance the fulfillment of his/her potential.

However, vocational educators should also be involved in the identification process and should be aware of some of the characteristics of gifted and talented students. Many students fail to gain recognition as gifted and talented until they reach an area of interest or a program which allows them to excel. These students are often referred to as "late bloomers" or those with latent talent.

A simple definition of gifted and talented students includes those students whose abilities, talents and potential for accomplishment are outstanding in comparison with their peer group and/or the total school population. The vocational educator may well be expected to identify such a gifted student in his/her instructional program.

It is a well-recognized fact that some students are "turned off" by the traditionally academic programs in our schools. But, when given an opportunity to participate in an area of interest or self-determined need, these same students will gain a spark of enthusiasm which ignites their potential. Training and experience in identification through observation and appraisal will benefit the vocational educator in identifying gifted students in the classroom or laboratory setting.

Characteristics which may be identified through observations and appraisals (Martinson, 1974)

1. Powers of concentration
2. Independent thinking
3. Versatile use of mental processes
4. Perseverance in intellectual endeavors
5. Desire to learn
6. Mastery of basic skills
7. Excellent command of language, precocity in using words and sentences
8. Creative imagination and resourcefulness
9. Alertness and great responsiveness; great sensitivity to various objects in the immediate environment
10. Organizes information
11. Varied interests
12. Curiosity
13. Grasps abstract generalizations

14. Has insights

15. Retentive

16. Extreme rapidty in learning and remembering

17. Ability to tell a story

18. Tendency to reproduce accurately the correct sequence of happenings during an excursion or event

19. Cooperative

20. Quality of participation in school activities

21. Leadership

22. Peer judgment

Appraisals must take into account certain non-intellectual factors which affect intellectual performance.

1. Motivation
2. Interests
3. Emotional maturity
4. Social growth
5. Personality development
6. Health

## Some Learning Characteristics of Gifted Children

May V. Seagoe (in Syphers, 1972)

Unfortunately most of the information that has been developed on identification processes deal largely with younger children. It is believed that the longer the student remains unidentified and unprogrammed in the area of giftedness, the more difficult the identification process.

The following list of characteristics has been included with the accompanying or concomitant problems for two purposes. First, to gain further insight into the characteristics of the gifted and second, that it is quite possible that some of the concomitant problems may be better clues in identifying older gifted students.

In simple terms, there is a strong possibility that the student whose gift or talent has been thwarted by the regular school programs, home and community may well have built-up an offensive behavioral mode as a defense mechanism.

| Characteristics | Concomitant Problems |
|---|---|
| 1. Keen power of observation; naive receptivity; sense of the significant; willingness to examine the unusual | 1. Possible gullibility |
| 2. Power of abstraction, conceptualization, synthesis; interest in inductive learning and problem solving; pleasure in intellectual activity | 2. Occasional resistance to direction; rejection or remission of detail |

| Characteristics | Concomitant Problems |
|---|---|
| 3. Interest in cause-effect relations, ability to see relationships; interest in applying concepts; love of truth | 3. Difficulty in accepting the illogical |
| 4. Liking for structure and order; liking for consistency, as in value systems, number systems, clocks, calendars | 4. Invention of own systems, sometimes conflicting |
| 5. Retentiveness | 5. Dislike for routine and drill; need for early mastery of foundation skills |
| 6. Verbal proficiency; large vocabulary; facility in expression; interest in reading; breadth of information in advanced areas | 6. Need for specialized reading vocabulary early; parent resistance to reading; escape into verbalism |
| 7. Questioning attitude, intellectual curiosity, inquisitive mind; intrinsic motivation | 7. Lack of early home or school stimulation |
| 8. Power of critical thinking; skepticism, evaluative testing; self-criticism and self-checking | 8. Critical attitude toward others; discouragement from self-criticism |
| 9. Creativeness and inventiveness; liking for new ways of doing things; interest in creating, brainstorming, free-wheeling | 9. Rejection of the known; need to invent for oneself |
| 10. Power of concentration; intense attention that excludes all else; long attention span | 10. Resistance to interruption |
| 11. Persistent, goal-directed behavior | 11. Stubbornness |
| 12. Sensitivity, intuitiveness, empathy for others; need for emotional support and a sympathetic attitude | 12. Need for success and recognition; sensitivity to criticism; vulnerability to peer group rejection |
| 13. High energy, alertness, eagerness; periods of intense voluntary effort preceding invention | 13. Frustration with inactivity and absence of progress |
| 14. Independence in work and study; preference for individualized work; self-reliance; need for freedom of movement and action | 14. Parent and peer group pressures and nonconformity; problems of rejection and rebellion |
| 15. Versatility and virtuosity; diversity of interests and abilities; many hobbies; proficiency in art forms such as music and drawing | 15. Lack of homogeneity in group work; need for flexibility and individualization; need for help in exploring and developing interests; need to build basic competencies in major interests |
| 16. Friendliness and outgoingness | 16. Need for peer group relations in many types of groups; problems in developing social leadership |

## Placement of the Gifted and Talented Student

The patterns of aptitudes, skills, and/or potentials that make up giftedness are numerous. Even though the student has been identified as being gifted and talented, the Vocational Educator should realize that there is an accompanying "sorting out" process to find the depth and breadth of the particular gift or talent. This gift or talent may or may not be applicable to the student's chosen occupational interest.

It is therefore recommended that the student be received into a vocational preparation program on its heterogeneous group basis. Once it has been established that the student has outstanding capabilities, can perform at an accelerated rate or requires differentiated programming, the vocational educator will need to be the "change agent." To facilitate change, the vocational educator must be knowledgeable of the occupational cluster. More specifically, he/she must be aware of the other occupational clusters which contain the potential of expanded opportunities for the student.

This knowledge is vital in making decisions regarding differentiation of the curriculum for the gifted and talented student. The vocational educator need not face this task alone. He/she should gain input from other vocational educators, the school counselor, other staff members, the parents, community and the gifted student. It is conceivable that the differentiated program content will be drawn from several instructional programs. It will be through a "hybrid" type of vocational education curriculum that the needs of the gifted and talented student will be met.

Placement, then, is a matter of taking the student into the regular program and, where necessary and possible, providing the leadership in developing the gifted student's differentiated/enriched individualized program.

Most vocational education programs are based upon individualized instruction. Each student is expected to complete the training program as an individual, through self-pacing, under the supervision of the instructor.

Differentiated programs likewise are both individualized and self-paced. However, these programs are designed for the specific student and are different from those of the regular students. Because of their potential for high performance and outstanding abilities, specially designed courses of study need to be given to the gifted.

It should be noted that there are no "right" answers to the questions regarding the differentiation of the curriculum for the gifted and talented students. The only right answers are those relating to a specific student, in a specific program, in a specific educational institution. But as any one of the variables change, the answers may also change. This may call for advanced placement, reassignment to other areas of instruction, the use of resources outside of the regular program, and the use of other personnel.

## Programming for the Gifted and Talented

As already stated, the probability is minimal that the number of gifted and talented students in one institution and/or school district who are interested in a specific vocational program will be large enough to warrant a separate program. Thus, the majority of the gifted and talented students will be educated in classes with a heterogeneous group of students versus vocational education programs specifically designed for this group of student.

In the limited situations where it is feasible to develop specific vocational programs for the gifted and talented students, it would be advisable to consider programs that are multidisciplinary. This might include programs such as medical-electronics, municipal utilities technician, legal secretary, etc. This type of program could be very challenging to the gifted and talented student and upon graduation, the employer would be hiring a uniquely qualified individual.

In the institution and/or school district where it is not feasible to develop separate programs for the gifted and talented student, these students will be integrated into the regular program. Here they will need special attention by the administration and the instructional faculty to ensure that they receive a rewarding, challenging and relevant educational experience.

This must be accomplished through differentiation of the regular curriculum. That is, although the gifted and talented student is enrolled in a regular vocational education program, he/she will in reality be in a new or hybrid program designed to meet that student's specific needs, interests, desires and goals. It must also be a program that draws upon educational techniques and procedures that complement the student's learning abilities.

The feasibility of providing a list of recommended programs for the gifted and talented students is further complicated by trying to project and anticipate the new opportunities in the future. Each, as it emerges, must be analyzed to determine its potential as a rewarding and satisfying career for the gifted and talented.

The vocational educator must be cautious not to prejudge occupations and their desirability for the gifted and talented student.

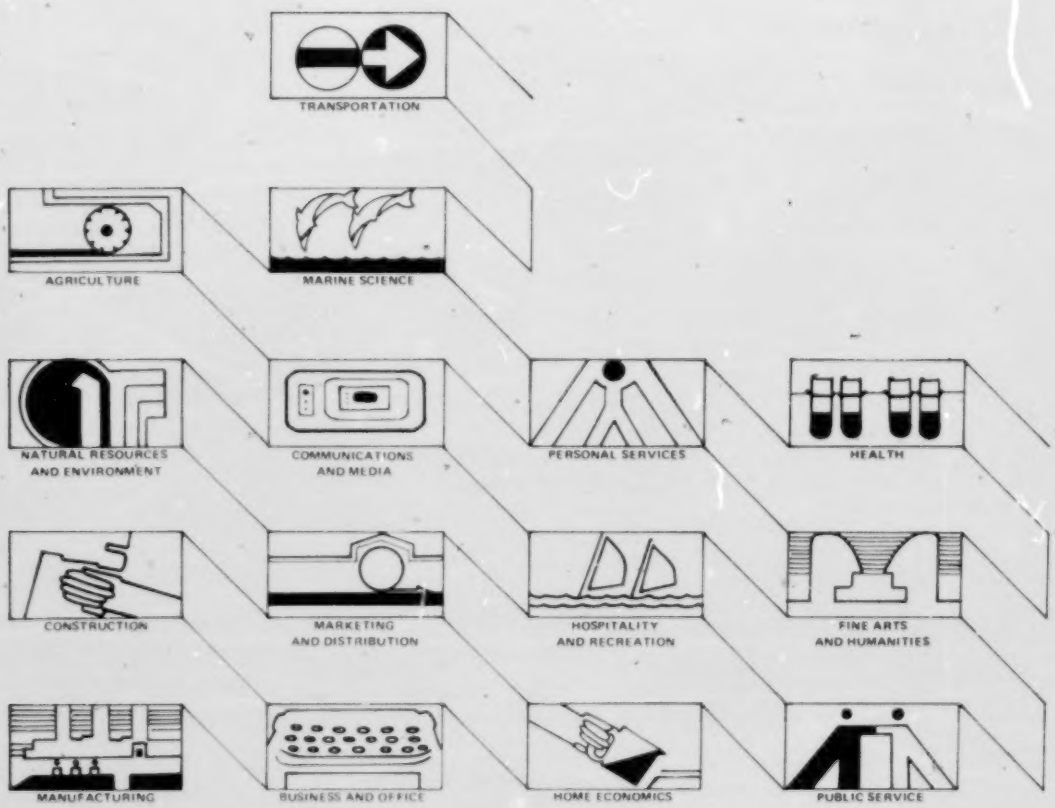
This can be done only in relation to the specific gifted and talented student's goals, desires and interests. Ability cannot be the only factor taken into consideration in determining vocational programs for the gifted and talented student. It may be through a program of minimal complexity and difficulties that the gifted and talented student becomes educationally stimulated. This program may then become the vehicle which will accelerate the student into making greater utilization of his/her capabilities.

# THE EDUCATIONAL AND OCCUPATIONAL LADDER

Vocational education provides not only the opportunity to learn skills necessary to gain employment, but it also places the individual in an occupational area or cluster or related occupations. Once in an occupational area it is possible to advance to higher-level jobs. The concept of being both employable and promotable suggests upward mobility and thus is referred to as the educational/occupational ladder.

Research and experience have revealed that the average adult worker will change jobs at least seven times in his/her career. It has also been established that even though there is a considerable amount of job changing, the individual will probably remain in one occupational area or cluster. For example, a person working in the manufacturing cluster will, in all likelihood, change jobs and gain upward mobility within that cluster. Some lateral movement does occur from such areas as Manufacturing to Business or Health and Health Care to Public Services. But the vast majority of adult workers will utilize their knowledges and skills by moving to other job classifications within a given cluster.

**The Fifteen Occupational Clusters**



Through the career education concept the 15 career clusters have been developed. They provide a means of identifying and grouping occupations that possess some common base of knowledge and/or skills. The 15 career clusters are as follows:

- Agriculture
- Business and Office
- Communications and Media
- Construction
- Fine Arts and Humanities
- Health
- Home Economics
- Hospitality and Recreation
- Manufacturing
- Marine Science
- Marketing and Distribution
- Natural Resources and Environment
- Personal Services
- Public Services
- Transportation

Vocational education, although it encompasses preparations for occupations within most of the career clusters, is organized for administration and supervision with a different clustering. The typical categories (service areas) utilized in vocational education (USOE Publication, OE-80061, Vocational Education and Occupations) are:

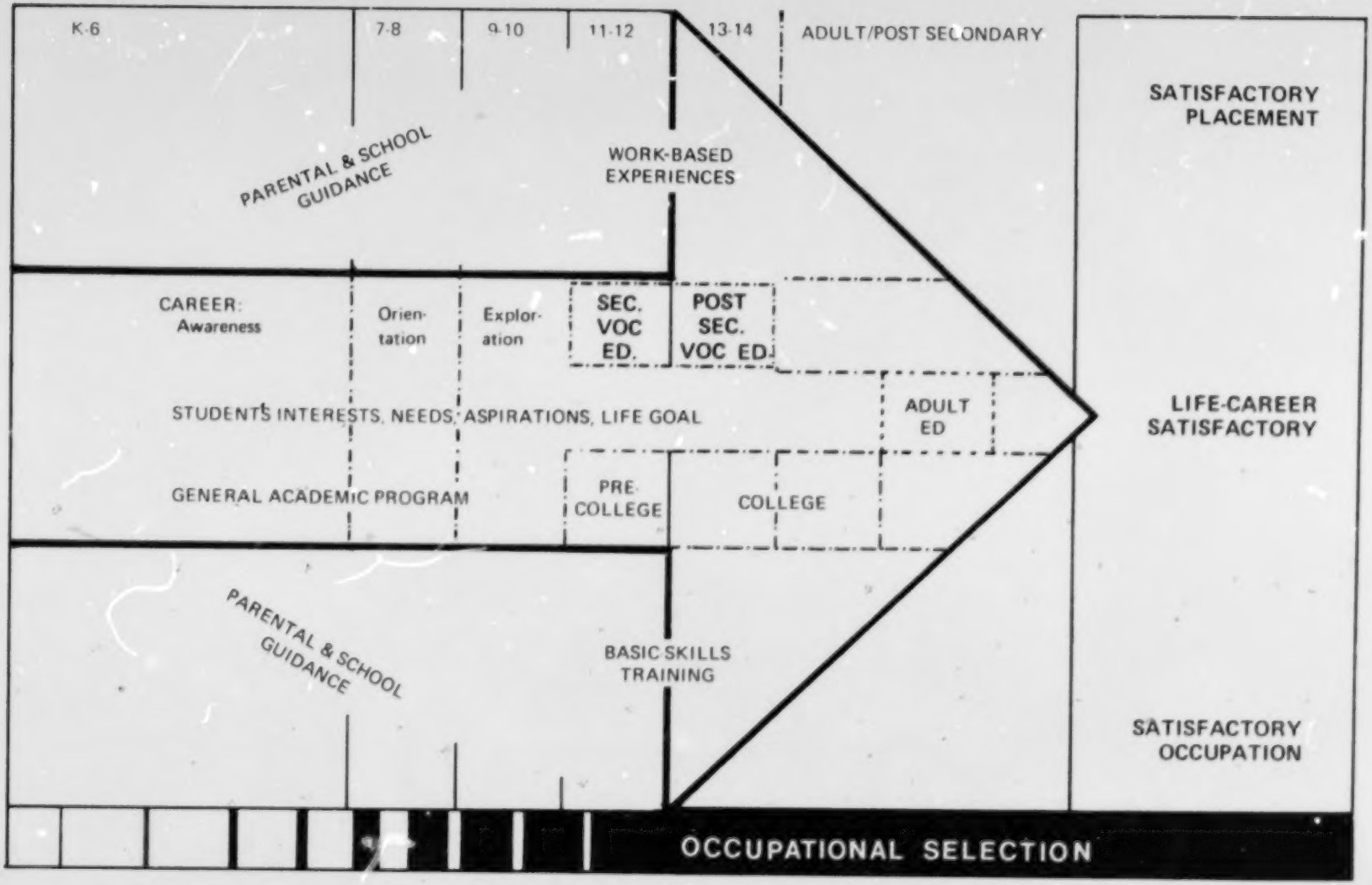
- Agriculture (01.0000)
- Business and Office Occupations (14.0000)
- Distributive Education (04.0000)
- Health Occupations (07.0000)
- Home Economics (09.0000)
- Technical Education (16.0000)
- Trade and Industrial Education (17.0000)

Although the administrative categories (service areas) have remained static, the programs within vocational education have been dynamic. Today, vocational education is seen as placing emphasis upon meeting the needs of the high school student, the post-secondary student, and the adult with special emphasis upon serving the disadvantaged and handicapped. Meeting the needs of the gifted and talented would focus upon a group that has received only minimal attention by vocational education in the past.

A graphic illustration showing vocational preparation in the total life-career development that leads to a satisfying job in the student's chosen occupational field is presented on the following page and is preceded by these descriptive comments:

* Life-Career development is a continuing process from K through adult.
* Occupational selection is a process that begins early in a students educational program.
* With parental, school guidance and the counselor's input the gifted and talented student arrives at an occupational selection compatible with his/her interests, needs, aspirations and life goals.
* Vocational education at the secondary and post secondary level, college and adult education contribute to a life satisfying career.
* Achievement of satisfying placement in a satisfying occupation are the key factors in life-career satisfaction.
* Life satisfaction is achieved by blending academic and occupational training with the students interests, needs, aspirations and life-goals.

# LIFE-CAREER DEVELOPMENT

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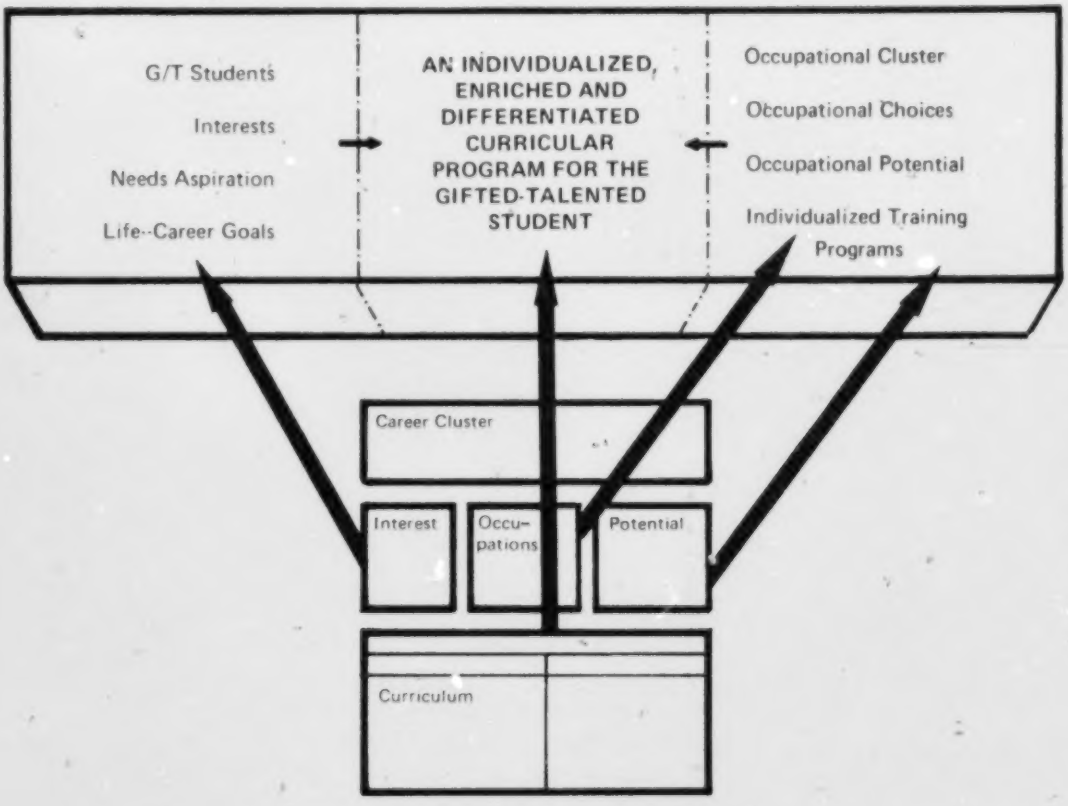
## The Fifteen Occupational Clusters Expanded

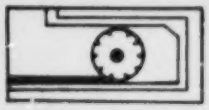
To facilitate change, the vocational educator must be knowledgeable of the occupational clusters. More specifically, he/she must be aware of the other careers in the cluster that contain the occupations most frequently pursued by the respective vocational educator's program graduates. This knowledge is vital to making decisions regarding the differentiation of the curriculum for the gifted and talented student.

Although the vocational educator will need to provide leadership in differentiating the student's curriculum, it will be impossible to do so alone. Input from several educators from different disciplines working together as a team will be needed to adequately and realistically accomplish the task of differentiation. It is conceivable that course content may be drawn from several of the regular instructional programs would prepare individuals for occupations falling within the realms of several different occupational clusters. It will be through a "hybrid" vocational education curriculum that the needs of the gifted and talented student will be met.

In expanding the information on each of the occupational clusters, specific occupations and job titles have been identified as potentially satisfying for gifted students. The long-range potential for placement in the cluster and suggestions for curricular enrichment, differentiation and individualization are also incorporated in the following treatment.

## PROGRAMMING FOR STUDENT OCCUPATIONAL INTERESTS





## AGRICULTURE (INCLUDING AGRI-BUSINESS)

Vocational programs in agriculture and agri-business emphasize the business, scientific and technological side of food production - the world's largest industry.

Specialized programs in production are dependent upon interrelated support from conservation, preservation and use of renewable natural resources.

### INTERESTS

Agricultural resource

Production

Forester aide

### OCCUPATIONS

Plant Technician
Soil Science Technician
Animal-Husbandry Technician
Food Processing Technician

Farm or Ranch Manager

Regulatory Inspector

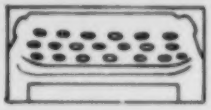
### POTENTIAL

Although farm employment will decrease, the need for better trained workers will increase as farming becomes more sophisticated. Off-farm agri-business labor forces will increase as farming continues to revolutionize.

### CURRICULUM

Enrichment - Differentiation - Individualization

| Key Methods & Techniques | Key Career Based Resources |
|---|---|
| Mentor Counselor<br><br>Development of higher-level cognitive process<br><br>Contract learning | **Manufacturing**<br>Product Designer<br>**Business**<br>**Business & Office**<br>Accounting<br>Natural Resources & Environment<br>Water Quality Control Technician |



## BUSINESS AND OFFICE

Students interested in the business world will find a varied number of career opportunities, all directed toward the business of America - - business, which has its roots in our free enterprise system.

### INTERESTS

Accounting

Computers

Finances

Secretarial

### OCCUPATIONS

Accountant
Business Manager

Computer Programmer
Data Processing Technician
Systems Analyst

Legal Assistant
Insurance Agent
Real Estate Broker

Clerical Workers
Court and Reference
Reporter

### POTENTIAL

This cluster will increase @ 30% by 1985. Clerical workers are expected to be the fastest growing group of workers in the next decade, due to the increased paperwork that will accompany the business world expansion.

### CURRICULUM

Enrichment - Differentiation - Individualization

| Key Methods & Techniques | Key Career Based Resources |
|---|---|
| Youth Organization | **Hospitality & Recreation** |
| Cooperative Education | Motel Management |
| Accelerated content | **Marketing & Distribution** |
| Individualized instruction | Store Owner/Manager |
| | **Public Service** |
| | Bank Officer |

## COMMUNICATIONS AND MEDIA

As the world moves toward the 21st Century, the focus will be on living and working together in cooperation and harmony, much of which will be brought about through the media of communication. Communication is the necessary ingredient in our day-to-day life and can be thought of as the transfer of information by means of telecommunication or graphics.

### INTERESTS

Journalism

Radio, TV and motion picture

Telephone & telegraph

### OCCUPATIONS

Interpreter
Reporter
Technical Writer
Graphic Artist

Audio-Visual Technician
Radio Broadcaster
Lighting Technician
Telecaster Technician
Photographer
Designer
Overseas Operator
Computer Technician

### POTENTIAL

Many potential job opportunities will be available in satellite and laser communication, which is becoming a major area in the field of communication.

### CURRICULUM

Enrichment · Differentiation · Individualization

| Key Methods & Techniques | Key Career Based Resources |
|---|---|
| Contract learning<br>Individualized instruction<br>Accelerated content | **Manufacturing**<br>Technical Writer<br>**Business & Office**<br>Reporter<br>**Marketing & Distribution**<br>Buyers/Sellers |

## CONSTRUCTION

Business, industry and homeowners all depend upon construction, whether for the buildings in which they reside or the highways and bridges which allow them mobility. Because lives depend on it, construction work must be accurate and precise in every task.

### INTERESTS

Structural work

Finishing work

Mechanical work

### OCCUPATIONS

Architectural & Drafting Technician
Carpenter
Ornamental Iron Worker

Marble Setters
Painter and Decorator
Landscaper

Electrician
Electrical Technician

### POTENTIAL

Employment is expected to increase 50% or more in all areas through the mid 1980's. Demand for more and better housing, discovery of new building materials and improved heating and cooling will provide numerous outlets for job opportunities.

### CURRICULUM

Enrichment - Differentiation - Individualization

| Key Methods & Techniques | Key Career Based Resources |
|---|---|
| Cooperative Education | **Agriculture** - Soil Science |
| Response environment | **Home Economics** - Furniture Designer |
| Research projects | **Fine Arts & Humanities** - Director-Set Designer |

## FINE ARTS AND HUMANITIES

Because it is perceived by the public as primarily an outlet for the professional performers, artists, writers and humanists, this occupational cluster has been overlooked by many as a vocational outlet. However, there are many opportunities for students interested in blending the arts and humanities with technology.

### INTERESTS

Visual arts

Performing arts

Others

### OCCUPATIONS

Artist - - Painter, Sculptor
Graphic Artist

Artist - - Actor/Actress
Musician, Dancer
Choreographer
Director
Set Designer
Costumer

Writer
Architectural Technician
Museum Worker

### POTENTIAL

As our society moves toward more leisure time, we will tend to look to this cluster for entertainment. Good artists will always be in demand.

### CURRICULUM

Enrichment - Differentiation - Individualization

| Key Methods & Techniques | Key Career Based Resources |
|---|---|
| Youth organizations<br>Community project<br>Learners without teachers | **Communications & Media**<br>Designer<br>**Hospitality & Recreation**<br>Tour Direction<br>**Public Service**<br>Law Enforcement |

## HEALTH

Caring for the ill and providing health services must be the concern of any student looking to this cluster for a life career. Good health depends not only on the individuals working in this area, but also on their geographic distribution.

### INTERESTS

Administration

Technicians

Nursing

### OCCUPATIONS

Dental
Medical
Ophthalmic
Veterinary
Laboratory Technician

Registered Nurse
L.P. Nurse
Nursing Aide

### POTENTIAL

The increased concern for health services will contribute to the growth of occupations in this cluster.

### CURRICULUM

Enrichment - Differentiation - Individualization

| Key Methods & Techniques | Key Career Based Resources |
|---|---|
| Accelerated content<br><br>Higher degree of complexity content<br><br>Working with the abstract concepts in a content area. | **Hospitality & Recreation**<br>Motel Management<br><br>**Manufacturing**<br>Product Designer<br><br>**Home Economics**<br>Child-care Assistant |

**HOME ECONOMICS (including Consumer, and Homemaking Education)**

Defined as both an art and a science, home economics identifies vocation in five main areas: nutrition, clothing, budgeting, home furnishing, and child care. The focus here is on the welfare of the family.

| INTERESTS | OCCUPATIONS |
|---|---|
| Nutrition | Dietitian<br>Chef<br>Food Manager |
| Clothing | Fashion Designer |
| Budgeting | Home Economics Consumer Technician |
| Home furnishings | Interior Decorator<br>Furniture Designer |
| Child care | Child-care Assistant |

**POTENTIAL**

Due to population growth and expansion of human services, employment outlook seems positive.

**CURRICULUM**

Enrichment · Differentiation · Individualization

| Key Methods & Techniques | Key Career Based Resources |
|---|---|
| Advanced levels of resource<br><br>Mentor Counselor<br><br>Creating or generating something new | **Fine Arts & Humanities**<br>Costumer<br><br>**Business & Office**<br>Real Estate Broker |

## HOSPITALITY AND RECREATION

Hospitality and recreation occupations are directly related to providing both enjoyable and beneficial use of leisure time. Included in this cluster are all occupations relating to tourism.

### INTERESTS

Tourism

Recreational

### OCCUPATIONS

Travel Agent
Tour Director
Motel Management

Recreational Director
Professional Athlete
Hunting and Fishing Guide

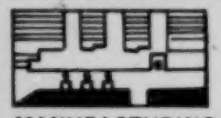
### POTENTIAL

Jobs will increase in this area, particularly in those oriented toward tourism. Earlier retirement and increased emphasis on leisure will stimulate growth in this cluster.

### CURRICULUM

Enrichment - Differentiation - Individualization

| Key Methods & Techniques | Key Career Based Resources |
|---|---|
| Community project<br>Youth organizations<br>Cooperative Education | **Communications & Media**<br>Photographer<br>**Fine Arts & Humanities**<br>Actor/Actress |



## MANUFACTURING

A major component of America's economy is manufacturing. Practically everything we use is a product of manufacturing. Jobs in this cluster are many and varied and often provide easy entries into other areas. Many supporting crafts are listed under Construction.

| INTERESTS | OCCUPATIONS |
|---|---|
| Management | Vice President<br>Analyst<br>Product Designer |
| Technician | Drafter<br>Electronics Technician |
| Craftsworker | Tool & Die Maker<br>Tool Designer<br>Ceramics Technician |
| Skilled worker | Pattern Maker<br>Electrician |
| Semi-skilled worker | Electroplater<br>Equipment Repairman |

### POTENTIAL

By the year 1980 well over twenty million will be employed in manufacturing. This will be the greatest number of workers in any area.

Caution: As jobs change or are phased out, workers may find it necessary to move into similarly related areas.

### CURRICULUM

Enrichment · Differentiation · Individualization

| Key Methods & Techniques | Key Career Based Resources |
|---|---|
| Cooperative Education | **Agriculture** - Food Processing Technician<br><br>**Natural Resources & Environment** - Land-use Technician<br><br>**Transportation** - Designer, Safety Inspector |

## MARKETING AND DISTRIBUTION

Marketing and distribution directs the flow of goods and services from producer to consumer. One of the major problems in the world today is getting food in sufficient quantities to areas where it is most needed.

### INTERESTS

Management

Research

Purchasing

Sales promotion

Selling

Distribution

### OCCUPATIONS

Store Owner/Manager
Traffic Manager

Marketing Research Assistant

Buyer
Seller

Recruiter
Product Designer

Sales Person
Exporter
Inspector
Traffic Clerk

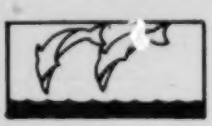
### POTENTIAL

Students will be able to obtain immediate entry and rapid advancement in the industry of their choice. Upward mobility potentials are limited only by aspirations and commitment.

### CURRICULUM

Enrichment - Differentiation - Individualization

| Key Methods & Techniques | Key Career Based Resources |
|---|---|
| Development of higher-level cognitive process | **Agriculture** - Food Processing |
| Cooperative Education | **Manufacturing** - Analyst |
| Working with abstract concepts | **Transportation** - Dispatcher |



**MARINE SCIENCE**

Occupations in this group deal primarily with the discovery, cultivation and harvesting of food and minerals from the sea.

**INTERESTS**

Research

Chemical & mineral extraction

Off-shore drilling

Fishing

**OCCUPATIONS**

Hydrologic Technician

Metallurgical Technician

Surveyor
Geologic Technician

Diver
Fish Culturist
Marine Technician

**POTENTIAL**

This cluster will provide a potential of opportunities as the need for food and minerals increase. The careers in this field promise to be both personally and financially rewarding.

**CURRICULUM**

Enrichment - Differentiation - Individualization

| Key Methods & Technique | Key Career Based Resources |
|---|---|
| Research projects<br><br>Working with the abstract concepts in a content area.<br><br>Self-initiated learning | **Agriculture** - Plant Technician<br><br>**Fine Arts & Humanities** - Writer<br><br>**Natural Resources & Environment** - Environmental Health |

## NATURAL RESOURCES AND ENVIRONMENT

The concerns in this cluster are with preservation of natural resources and environmental control.

| INTERESTS | OCCUPATIONS | POTENTIAL |
|---|---|---|
| Pollution | Noise Control Technician<br>Safety Inspector | Job opportunities will increase in proportion to national concern. |
| Disease prevention | Water Quality Control Technician<br>Food & Drug Inspector | |
| Environmental planner | Land-Use Technician<br>Environmental Health Technician | |
| Resource control | Forestry Technician<br>Wild Life Aide | |

## CURRICULUM

Enrichment · Differentiation · Individualization

| Key Methods & Techniques | Key Career Based Resources |
|---|---|
| Development of higher-level cognitive process | **Agriculture** - Food Processing, Forest Management |
| Cooperative Education | **Manufacturing** - Analyst |
| Working with abstract concepts | **Transportation** - Construction Engineer |

**PERSONAL SERVICES**

People helping people is an appropriate motto for this cluster. Service, not product, is the key item.

**INTERESTS**

Domestic

Personal

**OCCUPATIONS**

Executive Housekeeper
Personal Companion

Hairstylist
Funeral Director

**POTENTIAL**

Personal Services are expected to increase as a result of rising incomes and greater interest in personal and family comfort.

**CURRICULUM**

Enrichment - Differentiation - Individualization

| Key Methods & Techniques | Key Career Based Resources |
|---|---|
| Youth organization<br>Community project<br>Self-initiated learning | **Home Economics**<br>Interior Design<br>**Hospitality & Recreation**<br>Guide |

## PUBLIC SERVICE

This cluster involves a grouping of occupations concerned with providing services to the public. The majority of public service workers are employed by government--local, state or federal.

### INTERESTS

Administration

Protective

Education

Social services

### OCCUPATIONS

Bank Officer
Urban Planning Assistant

Law Enforcement Officer
Military Person

Teacher Aide
Library Technician

Correctional Specialist
Social Service Aide

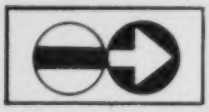
### POTENTIAL

It is likely that development in this cluster will continue to grow as the public's need for more services increases, particularly those services dependent upon government funding.

### CURRICULUM

Enrichment · Differentiation · Individualization

| Key Methods & Techniques | Key Career Based Resources |
|---|---|
| Contract learning<br>Learning without teachers<br>Youth organizations | **Transportation**<br>Drivers<br>**Business & Office**<br>Insurance Agent<br>**Communications & Media**<br>Technical Writer |



## TRANSPORTATION

People and things must be able to move from one place to another. America is on the move.

| INTERESTS | OCCUPATIONS |
|---|---|
| Highway | Drivers<br>Dispatcher<br>Supervisor |
| Railroad | Locomotive Engineer<br>Telegrapher |
| Airway | Pilot<br>Air Traffic Controller<br>Aerospace Technician |
| Water | Sea Captain<br>Merchant Marine |
| Pipe Line | Designer<br>Safety Inspector |

### POTENTIAL

Expansion is anticipated in air transportation and in aerospace; the pipeline industry will continue to need people in varying occupations. The other areas are not expected to show rapid increase, but there will be a need for replacement.

### CURRICULUM

Enrichment - Differentiation - Individualization

| Key Methods & Techniques | Key Career Based Resources |
|---|---|
| Responsive environment | **Public Service** |
| Mentor Counselor | Urban Planning Assistant |
| Youth organizations | **Marketing & Distribution**<br>Traffic Clerk |

# ADMINISTRATION OF THE GIFTED AND TALENTED PROGRAM

Serving the gifted and talented student will require the vocational educator to differentiate/enrich/individualize the curriculum, as previously noted. The extent to which the instructor will be able to make significant modifications in the curriculum will depend upon the latitude the instructor is given by the administration. This should not be misconstrued to mean that the instructor should be allowed to "run free" but rather that exceptions must be identified, justified and administratively approved. The justification and approval must be based on the benefits derived to the student as a result of the exception.

It should be noted that the time span from identification to justification to approval must be kept at a minimum. Excessive time delays will stagnate the modification of the curriculum for the gifted and talented student and probably will result in minimizing the benefits gained.

Some of the exceptions necessary for the gifted and talented student would be:

- opportunity to take only part of a given course (first six weeks, last nine weeks, etc.)
- opportunity to attend a course on an irregular basis
- accessibility to laboratories and shops outside the regular laboratory or shop period
- release time to meet during the school day with personnel away from the educational institution
- opportunity to complete a course ahead of the regular schedule
- enrollment in a course load considerably heavier than the normal student load
- opportunity to work on laboratory projects outside the scope of the regular curriculum.

The list could continue but it should illustrate that flexibility in operation is a prerequisite to differentiating the gifted and talented student's curriculum. The success of meeting the needs of these students is dependent upon the administration's commitment to this goal and its willingness to find ways to make things happen.

## The Vocational Education Teacher and the Gifted and Talented Student

Vocational education teachers might wonder if they are qualified to serve as teachers of the gifted and talented student. Certainly, a vocational teacher may do much to teach the gifted and talented student. However, all of the teacher's preparation now available is probably not enough without one other ingredient. Torrance (1965) explains: "They (knowledge, techniques and procedures) must be combined with your own potentialities and the needs of your own pupils in such a way as to become your own unique invention, your way of teaching. This unique invention of the teacher is tremendously important in the teaching of gifted children to help them discover and become their potentialities."

The gifted and talented student possesses many interests and the ability to pursue the majority of them. One of the functions of the instructor will be to analyze each proposed deviation from the regular curriculum and then to determine if the deviation is advantageous to the student's curriculum and career goals.

There are no magic formulas to be prescribed for the vocational educator in preparing him/her for teaching the gifted and talented. There is, however, information available through courses and/or independent reading to

provide a background upon which the educator may develop "a unique way of teaching" the gifted and talented students who enter your classroom and laboratory.

Gowan (1971) presents the following topics as areas of study beneficial to the educator working with the gifted and talented:

- A basic course in the psychology and education of the gifted
- Methods and materials for teaching the gifted
- Learning problems of the gifted (underachievement)
- Current research on gifted
- Supervised practice teaching of the gifted
- Maximizing creativity in the gifted
- Inspiring the gifted to acquire realistic self-concepts

The following is a guideline for the vocational teacher to use in preparation for meeting the needs of a gifted and talented student.

| Things to Do | Things to Know |
|---|---|
| 1. Identify gifted and talented student | 1. a. Characteristics of gifted and talented<br>b. Types of data available within school to assist in identifying the gifted and talented<br>c. Personnel within school system available to assist in identifying gifted and talented |
| 2. Develop a professional relationship (teacher-student) with the gifted and talented student | 2. a. Factors that tend to cause gifted and talented students to hide or dampen their ability<br>b. Ways of motivating gifted and talented students to achieve in relationship to their ability level<br>c. The unique characteristic and motivation factors of the gifted and talented student under consideration |
| 3. Differentiate the curriculum to better meet needs of gifted and talented student | 3. a. Methods and techniques used to differentiate the curriculum<br>b. School constraints which limit methods and techniques of differentiating the curriculum which may be utilized<br>c. The methods and techniques of differentiating the curriculum (that are viable alternatives in school system) that best meet the needs of the specific gifted and talented student |

| | |
|---|---|
| | d. The vertical articulation and horizontal movements a gifted and talented student might be able to pursue related to the vocational education program in which the student is enrolled |
| 4. Implement plan of action to differentiate curriculum for gifted and talented student | 4. a. How to evaluate the success of the differentiated curriculum for the gifted and talented student |

The instructor of the gifted and talented student should utilize a performance-based evaluation in gauging the gifted and talented student's psycho-motor skills. Due to the student's capabilities to grasp readily the theoretical knowledge and operational procedures, it is highly probable that the student may be able to score well on a paper pencil test within a short span of time. It may take longer to develop the necessary psycho-motor skills. The development of these skills will take repetitive practice for the gifted and talented student although probably not to the extent needed by the regular student. The goal of the differentiated curriculum for these students is to develop "highly" employable graduates and not "unemployable geniuses".

## Guidelines for Shaping the Program

The basic purpose of any vocational preparation program is to provide the students with training and experience that will allow them to enter the world of work with skills which make them employable and promotable. If the school already has a vocational program, it is then only a matter of accepting the gifted and talented into the program and providing a differentiated program to meet their interests, needs and occupational goals. If the program is soundly conceived and well designed, it can make adjustments to fit the needs of any exceptional students.

In providing opportunities for the gifted student some program adjustments can be accomplished in an efficient manner without diminishing the effectiveness of the regular program. A soundly conceived and well-executed program for the gifted does require some changes in staff development, however:

* The staff must receive usuable information on what they are to be responsible for and what they are to do.
* The staff should be given inservice training in the thinking, planning and best-known practices from those who work with the gifted.
* The staff should be included in the decisions to accept and assimilate the gifted into their program.
* Inservice training should deal with the what, the why and the hows of curricular revisions, personnel policies and programming of the gifted students into their program.
* The staff should be involved in the clarifying of purposes, establishing goals and developing commitments to serve the gifted in a differentiated/enriched individualized program.

There are several strategic points in the development of any sound program change in planning, development and operation. These points, each vitally related to and dependent upon the other, are concerned with those who are to be affected by the change - - in this case the staff and the gifted students.

Attention should be focused on such critical points as:

**Initiation** - - The approach should be open and honest and not become unduly restrictive. The instructors and the participants should be informed as to what they are to do and given the freedom to innovate or create an action program.

**Planning** - - The planning of any program change should involve those who are to perform the services and those who receive it. In developing a program of pupil progress which varies from the traditional approach, it is vital that the primary purpose of the

program, training and experience for the world of work not be diminished.

**Orientation** - - The educators involved should be given all possible consultant services in the planning and development of program adjustments. Consultant services should be realistic in terms of practices which are possible within the present structure, curriculum contents and instructional methods.

**Finances** - - Any program changes requires some additional expenditures. Funds must be made available for in-service training, planning and initiating a program. Unless some funds are made available the services to the gifted will fall short of their true purposes.

**Personnel** - - A careful analysis should be made of the personnel available both in the vocational education instructional staff and the support staff. The people who are expected to accept leadership responsibility must be willing to accept the challenge to try. No amount of training or planning will help the gifted unless the instructional staff are committed to the program.

**Resources** - - Similar to finances, any program adjustment will require additional resources - - information, materials and personnel. The instructional staff should be encouraged to seek out and use persons with expert knowledge in business, industry, agriculture and labor to reinforce the differentiated program.

**Credit vs. Competency** - - The problem of granting credit or reaching desired levels of competencies cannot be treated lightly or sloughed off easily. The instructor and the gifted student should be in agreement as to the standards which must be met for completion of skill training and experiential activities. Depending upon the criteria established for proficiency in the skill area, the instructor and the student should be given the freedom to negotiate the depth and breadth of meeting those requirements. It is nonsensical to believe that the gifted and talented student will not require differentiated programming. At the same time, the levels of competency in any given skill area must be maintained.

**Reinforcement** - - Both the instructor and the gifted student must be assured the support of the administration. In all probability staff members and other students will question the "preferential treatment" given to the gifted student. The instructor and the student must be allowed the time and freedom to develop the gift and/or talent to its fullest potential. Support and encouragement from the administration can be the necessary reinforcement to bring about success.

**Policy** - - From the very beginning any program adjustment must be established by school policy. There are certain administrative and "due process" regulations which govern the initiation and execution of any program that deviates from the "regular program." Such matters as parental consent, variations in attendance, away from school activities, and extended privileges must be approved by "board policy." Insist that the governing board adopt policies which govern any differentiated programs.

**Legal Ramifications** - - Vocational education for the gifted and talented must abide by the various local, state, and federal laws which relate to an educational program. This includes legislation such as affirmative action, sex discrimination, and family rights and privacy. Since the vocational education program for the gifted and talented will involve a differentiated/enriched/individualized curriculum, there is both a legal and/or moral responsibility that the educational institution has in informing the parents of students under age 18. The vocational educator and/or educational institution would be well advised to secure legal counsel regarding state laws prior to the implementation of a differentiated curriculum.

**Evaluation** - - Because the instructors will be responsible and accountable for any program changes or alterations, it is clearly evident that some documentation is needed. A clear statement of program intent should be set forth in measurable performance objectives, intermediate and terminal measures as to whether those objectives are being met should be built into the teacher-learner agreement or contract. Evaluation for any form of individualized instruction should measure where the student is at the start

and what growth occurs. If a program is truly individualized and differentiated, the evaluation, too, should be individualized and differentiated.

## A Brief Summary of Program Guidelines

- Involve the vocational education instructional staff in planning and developmental decisions.
- Involve the gifted students in the planning and development processes.
- Tailor the program to fit the needs of the gifted student in the framework of the established program.
- Allocate both financial and material resources to insure program success.
- Start with in-service training and allow time for growth and development
- Involve other staff and community resource people.
- Maintain flexibility in the program.
- Establish clearly the purposes and procedures under which the program will operate.
- Insist on adopted policies to govern the program.
- Make provisions for accountability through documented evaluation.

## Awareness of Vocational Education Opportunities

The following are some suggested activities or process by which vocational educators and other school personnel may acquaint students, parents and community adults with opportunities in Vocational Education.

**Buddy, Big Brother or Sister Day** - - Each student enrolled in a vocational preparation program brings a younger boy or girl (grades 7-10) to a regular day of classes or activities. This could accompany Career Education orientation phases.

**Field Trip Programs** - - Establish an interesting excursion or tour plan which can accomodate small groups from grades 7-10. Extend invitations to classes in junior high or high school to visit the classes and training programs in action. Enrich, expose and extend awareness of the vocational opportunities.

**Parent-Student Participation Night** - - Each student at the secondary level of vocational preparation is encouraged to bring one or both parents for awareness purposes. Encourage the parents to ask questions and participate in activities. They may become program advocates and extend the word.

**Interest Sessions or Mini Courses** - - Invite men and women from the community or students from the school to participate in a series of three 3-hour sessions on a topic or activity which would be of interest to them as house holders, green-thumb enthusiasts, nature lovers, etc. A brief exhibition or demonstration of an activity maybe followed by active participation: food preparation, scuba-diving, animal care, flower arranging- - wine making. The activities should be related to the types of vocational preparation programs offered at the secondary or post-secondary institution.

**Role-exchange Programs** - - Invite selected individuals from the work field to participate in the instructional program while the instructor replaces him/her on the job. Both may learn something valuable for their own jobs. A similar exchange can and should occur between members of the school instructional and administrative staff. The intent of role-exchange programs is to actually involve the participants in each other's roles, not merely become spectators.

**Awarding of Scholarships and Stipends** - - As within the academic and athletic arenas, vocational educators should be encouraged to extend tuition-break scholarships to graduating seniors. Many private business colleges, trade schools and industrial groups have established such programs. Such schol-

arships are enough incentive to cause some students to make the final decision about what to do after graduation. Alumni funding of the scholarships or stipends takes time and promotion, but the long-range benefits are worth the effort.

**Visibility Campaigns** - - Public acceptance of vocational education has been hindered in many communities by lack of visibility. Many resources are available on public relations, promotional campaigns, exposure techniques, etc. A visibility campaign should consist of long-range planning which includes the use of public media, news letters, open houses, and person-to-person contact.

**Service Club Visits** - - The typical approach to working with service clubs or organizations has been to provide a vocational education speaker and a slide or film presentation. In each of these it is the vocational educator that goes to the service club meeting. It suggested here that the service club be invited to visit, observe, and participate in the vocational programs at the secondary or post-secondary institution. Similar invitations should be extended to schools or youth groups such as the student council, honor society, 4-H clubs, and scounting organizations.

# CURRICULUM AND INSTRUCTION FOR THE GIFTED AND TALENTED STUDENT

The gifted and talented students who enter the vocational education programs at either the high school or post-secondary level will be a heterogeneous group. As indicated by Torrance (1965), "Many fascinating insights concerning the functioning of childrens' minds occur even when we limit ourselves to the examination of such qualities of thinking as fluency of ideas, spontaneous flexibility, originality, and elaboration. Some children are exceptionally fluent in the production of ideas expressed in words but are unable to express ideas in figural or auditory symbols. Others may be tremendously fluent in expressing ideas in figural form but appear paralyzed mentally when asked to express them in words or sounds."

Because of the diversity among the gifted and talented, it is not desirable to prescribe a "recipe" approach for the development of the curriculum or the instructional methods for the gifted and talented student(s) in vocational education. For this reason, information of value to the development of the curriculum and instructional methods is presented. The instructor, aided by other professionals, should assess each gifted and talented student in making a determination as to the best alternatives for the student. The instructor will, however, be the one who manages and supervises the master plan for the gifted and talented student's program.

## Instructional Alternatives

The four major curriculum approaches utilized in providing programs for the gifted and talented students are:

* ability grouping the gifted and talented into special classes
* accelerating the gifted and talented student through the regular program, through the use of individualized instruction

- enriching the regular curriculum for the gifted and talented student
- differentiating the curriculum by adding content not found in the typical curriculum, but content which enhances the students employability and promotability.

**Ability Grouping** - - Under this approach the students are selected on the basis of some predetermined criterion to pursue a special class(es) and/or curriculum. For the gifted and talented, the instruction would provide both acceleration and enrichment.

The two major difficulties encountered with this approach are: (1) the gifted will still differ in abilities, interests, aspirations, and life-goals relating to criteria not utilized in making the selection; and (2) there would typically not be sufficient numbers of students in the majority of the communities to justify the establishment of special vocational education programs for the gifted and talented.

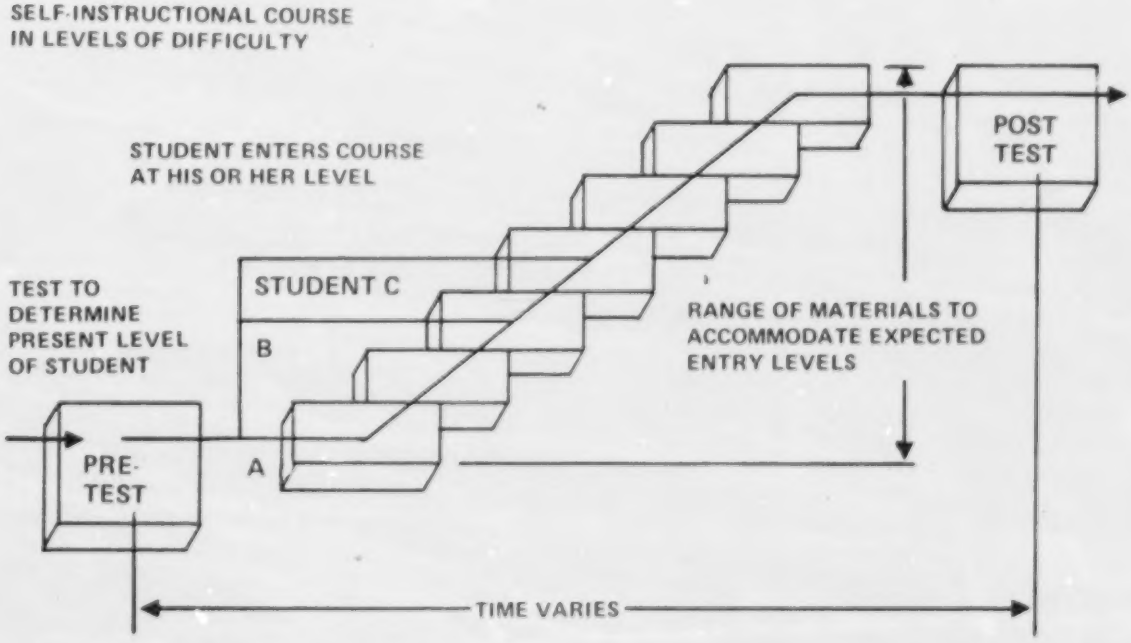
It should be noted that if the numbers problem can be overcome that there is merit in this approach. Torrance (1965) stated, "In summary it must be admitted that research on ability grouping, as crude and as undifferentiated as it has been, has generally shown that the academic achievement of gifted students in narrow range ability groupings tends to be somewhat greater than in broader range ability groups (heterogeneous)."

**Acceleration/Individualization** - - This approach assists the gifted student in advancing through the educational program in a shorter period of time than the typical student. Thus, the student is ready to enter the labor market or advanced educational placement at an earlier age.

Since vocational education is designed to prepare the student for employment, the earlier employability date increases the individual's productivity and earning power. It should be noted, however, that the student could conceivably complete an accelerated program (including a two year post-secondary school program) at an age less than 18 years and find it difficult to secure employment because of labor laws.

The acceleration approach has received consideration by many educational institutions as they view methods of meeting the needs of the gifted and talented. However, as noted by Gallagher (1964) "At some time during the career of bright children . . . the question will be raised by parents or teachers as to whether

BASIC INSTRUCTIONAL MODEL IN AN INDIVIDUALIZED LEARNING CENTER



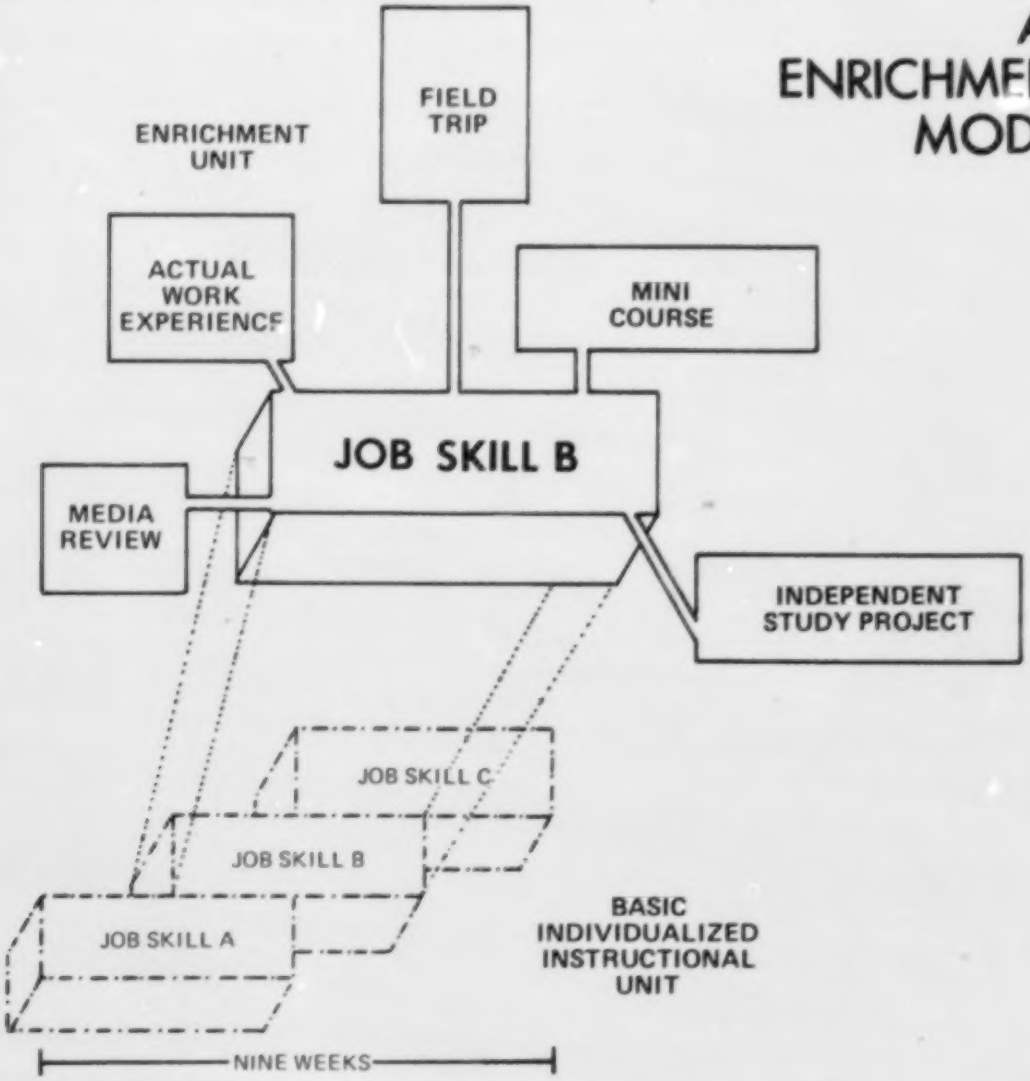
they should be 'accelerated' in school. To both parents and educators, this has been a problem of continuing concern."

The typical method used to accelerate the student is through individualized instruction. This method of instruction provides the student with the learning materials, usually multimedia, and the student proceeds through the established learning packet or module at his/her own pace. The goals are stated not in what the instructor intends to accomplish, but what a student will be able to do, how he/she will do it, and what level of achievement must be attained. (Campbell and Kush, 1974)

Individualized instruction units are generally arranged in short, easy-to-follow sequential steps that assist in successful learning. The student may utilize the resources available for that unit of instruction. Ideally, the units are so organized and used that the sequential steps are systematically evaluated. When the student reaches an expected degree of proficiency or competency, the next step begins.

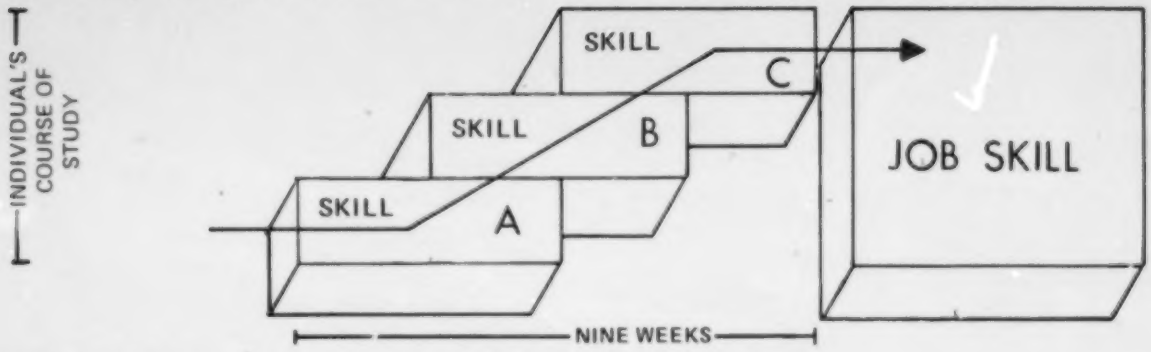
Variations in student progress can be built into individualized instruction by using pre- and post-tests. A student may pre-test through some of the more rudimentary levels in the learning unit and begin at the level where competencies are lacking. Conceivably, a student can take the post-test and, by satisfactory completion, by-pass the unit altogether. Most units, however, contain some practical or construction work which must be produced as part of the learning experience.

## AN ENRICHMENT MODEL

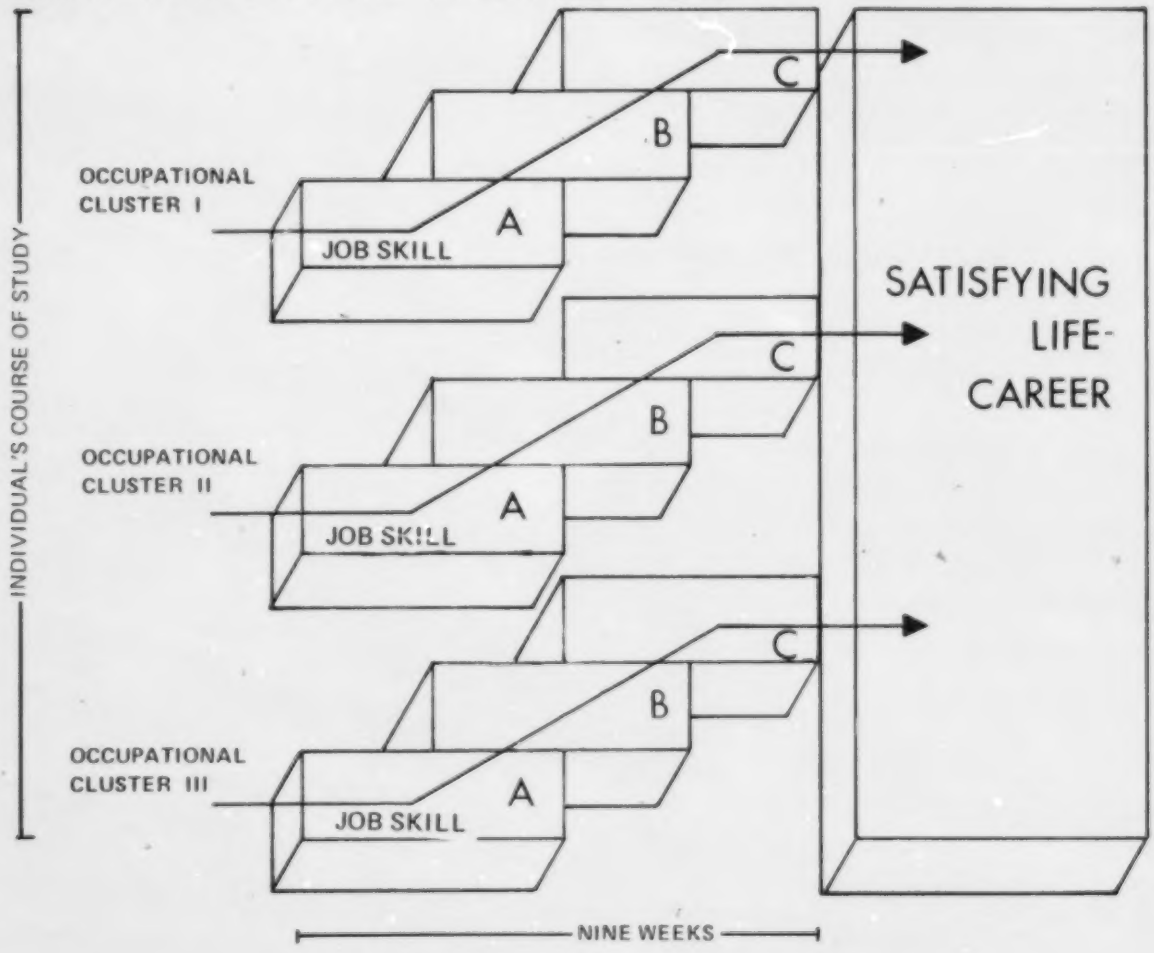


Numerous learning packages are available commercially for instruction in each of the occupational clusters and skill areas. The values in this type of instruction are that the student is an active participant in the learning process and that through pre- and post-testing, the amount of learning can be measured.

## INDIVIDUALIZED INSTRUCTION




## DIFFERENTIATED INSTRUCTION



**Enrichment** - - "Most generally approved among the four curriculum alternatives has been enrichment. It advocates, however, have not been able to produce as good research support as have advocates of special groups and acceleration," said Torrance (1965).

This approach maintains the gifted and talented student with his/her peer group and in the regular curriculum with special supplemental activities and endeavors for the gifted and talented student. As the current pressures for "mainstreaming" mounts, enrichment will become a more desireable alternative to ability grouping. (See graphic on page 37.)

The enrichment approach would provide the student with greater insights, depths of understanding and application of the curriculum content. It would, however, limit the student to the units/topics in the regular curriculum. The student would invest free time (time available because of completing the unit/topic ahead of other students) in enrichment activities relating to the job-skill being studied. When the class moved to a new unit/topic, the gifted and talented student would again join the class until he/she had the requirements for the new unit completed. At that time enrichment activities could again be pursued.

### Differentiated Instruction

Individualized instruction does allow student participation and the freedom to self-pace the learning unit. A total program of instruction usually consists of using a series of learning units in sequence and building skills within an established course of study. Even though there may be a variety of alternative units, they are still part of that course's framework.

Differentiated instruction draws learning experiences from a variety of different courses which may draw learning units from a completely different skill area and/or program. Units may be drawn from a completely different occupational cluster, depending upon the student's interests and needs.

The difference between individualized instruction and differentiated instruction is that of varying the learning areas rather than the method of instruction. The accompanying graphic illustrates how the two differ in the same time period. In a nine-week time frame, the more capable student could complete instructional units in three area, for example, while the regular student progresses through one individualized course of study.

## Methods and Techniques of Instruction

Vocational educators may utilize many different methods and techniques in developing the curricular program for the gifted and talented student. The following listing is presented as examples and not as a complete listing of alternatives available. It is hoped that it will provide guidance and motivation for the instructor as he/she prepares to assist the gifted and talented student in a vocational education program. The listing is not in any priority or specific order.

| Method/Techniques | Application/Illustration |
|---|---|
| 1. **Contract Learning** - - " . . . the approach enables each student the opportunity to shape a program around his or her needs, interests, prior achievements, capabilities, and aspirations," Gross (1976). | 1. A student in the advanced phases of an accounting program could enter into an extra credit contract with the instructor and by utilizing created or actual data, conduct an analysis of the financial records of a specific business to determine whether such a system is adequately meeting the needs of that specific business in terms of recording, reporting, analyzing, and interpreting the financial data of the company in assisting the businessman in making the decisions that he must make from day to day. |

| Method/Techniques | Application/Illustration |
|---|---|
| 2. **Self-Initiated Learning** - - The student seeks out an instructor and resources necessary to facilitate the student learning a specific skill, knowledge or concept. | 2. The student in an agricultural program might further his/her knowledge in artificial insemination through a self-initiated learning. This might be accomplished by the student contacting a veterinarian and making arrangements to meet with him to obtain specific knowledge, to secure booklets and pamphlets from the veterinarian for study purposes and to observe the veterinarian as he performs artifical insemination. |
| 3. **Learners Without Teachers** - - The student is provided a study guide by the institution which he/she follows in studying on his/her own. To complete a course or program, the student must pass a comprehensive examination and/or demonstrate abilities and competencies. | 3. A culinary arts program may enroll a gifted and talented student who desires to enrich his/her program and occupational preparation by learning the specialty of making pastries which is not included in the regular curriculum. Through the technique of learning without a teacher, the student could be provided a study guide reference materials and access to a supervised laboratory. The student would progress on his/her own in learning this specialty while pursuing the regular culinary arts program and be evaluated through a comprehensive examination and demonstrated skills. |
| 4. **Cooperative Education** - - The student is employed part-time while in school or full-time for short periods of time by a business or firm and performs tasks that draw upon and enrich the student's educational preparation. The student is employed under an agreement between the student, employer and school which includes an outline of the experiences to be gained through the cooperative program. | 4. The cooperative education method could be utilized to enrich any vocational education where related employment could be secured. This method could be utilized during the summer months when the regular school term is not in session. It provides a "real world" environment for the gifted and talented student to apply his/her knowledge and skills. |
| 5. **Mentor Counselor** - - A knowledgeable and experienced person in the gifted and talented student's field of interest provides the student with counsel, guidance, opportunities to observe, answers to questions and assists the student in accomplishing his/her educational and career goals. | 5. The mentor counselor could provide a significant avenue of enrichment for a student in a high school nurses' aide program. Through the mentor counselor, the student could become better informed about vertical articulation opportunities and educational requirements for the various employment opportunities in the health field. |
| 6. **Research Projects** - - The gifted and talented student conducts a research project in his/her area of interest under the guidance and counsel of a more knowledgeable individual. The project might provide enrichment to the | 6. A research project may be utilized in enriching a distributive education program. The student might select a given product and conduct research on customers' attitudes, likes, and wants and from this infor- |

| Method/Techniques | Application/Illustration |
|---|---|
| curriculum being pursued or relate to supportive process enrichment. | mation develop a marketing program designed to increase sales of the product. |
| 7. **Response Environment** - - The gifted and talented student is provided an opportunity to use free time (while other classmates are completing required work) to work with equipment, instructional materials or concepts that are significantly more advanced than the student's educational background. Through the challenge of not understanding and the desire to know, the student is led into enrichment type educational experiences. | 7. The gifted and talented student in an air conditioning and refrigeration program could enrich his program by delving into a study of solar furnaces. The activities might include research study on solar furnaces followed by developing a model solar furnace to be utilized in conducting experiments on the concept. |
| 8. **Youth Organizations** - - The vocational education youth organizations provide enrichment opportunities for the gifted and talented. Fitzpatrik (1976) states that "students are encouraged to excel by participating in both leadership and skill areas. The American VICA degree, the highest award that may be earned while in school, recognizes students who do equally well in both areas." The enrichment opportunities through VICA are similar to those available through the other vocational education youth organizations. | 8. The youth organization approach provides an excellent opportunity to supportive process enrichment to any vocational education curriculum. Here the gifted and talented student may increase competencies in public speaking, conducting meetings, personnel management and organization, to list but a few. |
| 9. **Community Project** - - The gifted and talented student may find enrichment experiences to supplement in-school activities through a community project. The project pursued (political, social, recreational, civic, etc.) will determine the type of enrichment the student will receive and the relationship to the student's curriculum. | 9. The gifted and talented student in a business management program could enrich his/her program by developing and carrying out a community project. An example might be the planning, organizing and conducting of a seminar for local businessmen. The topic could be identified by the student through contact with a representative sample of businessmen and the content for the seminar provided by resource people. |
| 10. **Individualized Instruction** - - The many different approaches to and variations of individualized learning all provide avenues to be utilized in providing enrichment experiences for the gifted and talented student. This approach might include the use of audio-tutorial materials, programmed materials, learning activity packets and any of the other either commercially produced or teacher developed materials. | 10. The student in a manufacturing technology program might enrich his program by pursuing through individualized study specific units of Tech. Physics which relate to manufacturing. The added knowledge gained through the Tech. Physics would enhance his/her understanding of materials and material processing and to the employability of the gifted and talented student upon graduation. |

| Method/Techniques | Application/Illustration |
|---|---|
| 11. **Development of Higher-Level Cognitive Processes** - - The student is provided an opportunity to learn and practice the skills related to the processes of analyzing, synthesizing and evaluating both as separate processes and as processes which are part of the strategies of problem solving, critical thinking and creativity. | 11. A student in a Home Economics course in cooking could be provided an opportunity for enrichment through doing experimental cooking. This would allow the student an opportunity to experiment with different ingredients and different proportions with the results being analyzed and new recipes developed. |
| 12. **Accelerated Content** - - This approach allows the student to work with knowledge and skills which correlate with the student's mental rather than chronological age, parallel his/her interests and satisfy his/her need and quest of substantive information. The student would advance through the regular curriculum in less time than the typical student. | 12. A high school junior in a vocational Electronics program would be allowed to accelerate beyond the other students in the class. Through this approach, the gifted and talented student would not go beyond the regular curriculum but might complete the two-year high school vocational education program in one year. |
| 13. **Higher Degree of Complexity Content** - - The student does not advance ahead of the class to other units of instruction in the program but concentrates additional time in pursuing additional depth in the unit being studied. The student may concentrate on proof of theories, application of theories or greater depth of study of specific details. | 13. Hydrology and Drainage is one course typically found in a Civil Technology program in which units of instruction for gifted and talented students could be added. For example, elementary hydraulics and the hydrologic cycle are units in the regular course of instruction. Ordinarily, the principles of hydraulics are not applied to the study of the hydrologic cycle; there is not adequate time for this and it requires training beyond the level of the average student enrolled in the course. However, it is conceivable that units could be designed for a gifted and talented student which include the study of elementary hydraulics, the hydrologic cycle and a blending of the two, to include methods of:<br>(1) conducting ground water investigations<br>(2) controlling reservoir sedimentation<br>(3) preventing channel and dam scour<br>A student with this additional training would acquire language and skills beyond what is normally obtained in preparation courses, and, above all, would be a greater asset to an employer involved in water-resources engineering. |
| 14. **Working With the Abstract Concepts in A Content Area** - - The student enriches his/her program by dealing with abstract ideas, theories or concepts which are inferred or | 14. The study of display design provides the gifted and talented student with an opportunity to go beyond the regular curriculum in studying the various abstract ideas and |

| Method/Techniques | Application/Illustration |
|---|---|
| discrete in the unit of instruction and which require reflective, critical and/or creative thinking in order to make them concrete, give them meaning or make them applicable to practical situations. | concepts utilized in display design work and to make practical applications of the various design concepts. |
| 15. **Advanced Levels of Resources** - - The student is allowed to seek out and to utilize resources either human or material that go beyond the resources reserved or designated for the regular curriculum. | 15. The gifted and talented student in an architectural drafting program could advance his/his knowledge of structural theory through the utilization of textbooks in the area of structural analysis technology. This would strengthen the student's preparation in statistics, the basic concepts of structural theory and their applications to statistically determined structures. |
| 16. **Creating or Generating Something New** - - The student utilizes knowledge and skills obtained through regular program and/or enrichment activities to create or develop something new. | 16. The student involved in a unit of instruction utilizing the surface grinder could work on developing and making a fixture, for the surface grinder, designed to be utilized in reconditioning worn out milling machine cutters. This would involve special mathematical computations and special machine set-up on several other machines. |

The vocational educator should observe one caution in selecting any technique or procedure and assigning activities outside the regular curriculum to the gifted and talented student. The assignment must not be or perceived by the student to be irrelevant busy work. It must be something that interests, excites and challenges the gifted student.

## Program Modifications for the Gifted and Talented

It must be noted that the following illustration is not presented as the "model" approach to be followed in providing a vocational education program for a gifted and talented student. The illustration is presented as an example only - - one approach among many. The approach to be used in any specific situation must be tempered by the resources available in the institution and/or communities. The approach should have the potential of producing the greatest results for the student.

The illustration assumes that the student has, through counseling and guidance supplemented with career awareness and exploratory experiences, identified a career goal. Thus, the student is ready for the career preparation phase of education.

## AN ILLUSTRATION OF HOW A VOCATIONAL EDUCATION PROGRAM, GRADES 11-14, COULD BE MODIFIED FOR THE GIFTED AND TALENTED STUDENT

| Level in School | Type of Vocational Education Enrollment | Methods and techniques for accelerating student and/or enriching the curriculum | Terminal goals for student |
|---|---|---|---|
| High School Junior (Grade 11) | Enrolled in the two-year in-school Vocational Education Program | 1. Individualized Instruction<br>2. Contract Learning<br>3. Mentor Counselor<br>4. Youth Organization | To complete the requirements of the 2 year in-school Vocational Education program in one academic year |
| High School Senior (Grade 12) | Enrolled in a Vocational Education Cooperative Education Program | 1. Mentor Counselor<br>2. Research Project<br>3. Youth Organization | 1. To obtain actual employment experiences which utilize knowledge and skills gained through in-school Vocational Education Programs<br>2. To increase depth of understanding in vocational field and to expand breadth of knowledge in vocational field and in related areas |
| Post-Secondary Freshmen (Grade 13) | Advanced placement within the in-school post-secondary Vocational Education Program | 1. Advanced Placement<br>2. Mentor Counselor<br>3. Youth Organization<br>4. Community Project | 1. To complete the requirements of the in-school post-secondary program in one academic year<br>2. To increase the breath of understanding in vocational and related fields |
| Post-Secondary Sophomore (Grade 14) | Enrolled in vocational courses which complement student's vocational area and individualized study courses in student's vocational area | 1. Problem solving research project<br>2. Youth Organization<br>3. Mentor Counselor<br>4. Individualized Instruction | 1. To increase depth and breath of knowledge and skills in vocational area<br>2. To increase depth and breath of knowledge in areas supportive of vocational area |

* Student is employable at a given skill level upon completion of the first post-secondary year.

# VOCATIONAL PROGRAMS WITH GIFTED/TALENTED STUDENTS

In preparing the contents of this **Guide** a cursory survey was made through the ten Regional Offices for Vocational Education programs for the gifted and talented. No specific examples were found; however, many outstanding programs were reviewed which, by their very nature, would be challenging to the gifted students. These programs focused upon various occupations throughout the 15 clusters and appeared at both the secondary and post secondary level.

Contact with the directors of some of the programs further revealed that although they had many academically able students in their program, none were specifically identified as being gifted. Because of the time constraints under which this project was limited, on-site visits and data collection on individual students was not attempted. Five programs were examined in greater depth and are cited here as being examples of challenging programs which would attract and hold gifted and talented students.

## Beverly Hills High School - Technical Arts Department

In this program the offerings range from survey courses in technical drawing and architecture to advanced architecture, commercial building design, and engineering research/design. Mr. Frank E. Mahan, the design, drafting and model building instructor, shared both narrative and graphic illustrations of his students' work. His students have brought distinction to the program over the past several years by winning local, regional and state design honors under the title of "Beverly Expo-tech."

The specific course, which is under consideration here, is in Engineering Research and Design. The course is open to academically able students in grades 9-12 and there are no prerequisites. The program for both boys and girls explores areas of modern technology through original and creative thinking and development of unique types of problem analysis.

The course is designed not only for those interested in engineering and science, but for all **academically able** students concerned with the future. One of the unique features is that the course context is variable to the students' occupational plans. Investigation of an individually selected practical engineering problem allows the student to explore, research, share knowledge with other students. Studies in conceptual approaches, brain-storming sessions, field trips and guest speakers are part of the enrichment activities for both individual students and the class as a whole.

Students may develop an original problem or choose one from among the following examples: Nuclear Reactor, Hydroelectric Dam, Satellite, Tidal Hydroelectric Power, Einstein's Fourth Dimension, Mohole, Satellite Tracking Station, Nuclear Powered Rocket, Lunar Colony, and Graphic Analysis of Beat Poetry.

As is true of most vocational education programs, the Engineering, Research and Design course blends both theory and practical units. Checksheets are provided for helping the student program his/her activities. Sign-off on the checklists may be made by the instructor, advanced student supervisor, the student's "Design Twin," or the student. Items on the checklists are to be performed in sequence, but the student is self-paced.

The total Technical Arts Program at Beverly Hills was found to be of such quality that it undoubtedly has attracted and processed many gifted students. This program should probably be classified as more of a vocational exploratory course than a truly secondary vocational education program. The student impact is what has been exemplified here.

## Brazosport College - Oceanic and Marine Technology

Brazosport College is located at Lake Jackson, Texas and offers a wide range of occupational-technical programs. It serves an area 60 miles south of Houston, particularly the cities of Freeport, Lake Jackson and Clute. The college draws heavily on the abundance of natural resources off the Gulf of Mexico and utilizes the enrichment opportunities provided by a number of industrial and chemical companies located in that area.

In addition to many of the management, business and health care vocational programs, several noteworthy technological programs are offered. Electronics Technology and Instrument Technology were cited by Jack L. Foreman, Director of Occupational and Technical Education as being exemplary in addition to the Oceanic and Marine Technology program selected for exemplification here.

Brazosport College has an excellent counseling and placement program which assists the students throughout their two-year program. As the student nears the completion of the two-year program, interviews with area industries are arranged by the placement center. The records show that the graduates of many of the programs quickly move into significant, well paying positions with the industrial firms which flourish along the Texas Gulf Coast as well as other areas of the state and nation.

The program in Oceanic and Marine Technology has two major components - - The Cooperative Program and the actual technological training. Each of these rely heavily upon the off-shore industries, marine photo-chemical operations, sports and recreational water activities, commercial fisheries, oceanographic exploration and research companies in the area for their practical experiences and enrichment activities.

Again, no specific gifted and talented students were identified. But, concurrent with the rigid class and field experience requirements, only the more capable student could handle the fascinating realm of oceanic and marine technology programs. Graduates of the two-year program are provided with many career alternatives because of the valuable skills learned.

Students in the two-year program are given classes in oceanography, seamanship, marine electronics, technical math and technical physics. At the completion of the first year the student will have been prepared for U.S. Coast Guard examinations and for immediate employment in industry. Second year students will receive their Associate of Applied Science Degree and, of course, qualify for many more skilled and technical positions.

Judged to be an outstanding example of some of the exemplary programs available to gifted and talented students, this post secondary example should have little difficulty in attracting and challenging students with outstanding potentials as they pursue life-satisfying careers in marine science. With three fourths of the world existing as ocean and with only approximately six per cent of the ocean floor having been explored by man, it is strikingly evident that the world's ocean poses a dramatic challenge to the most intellectual and most creative minds.

## Northwest Areas Schools of South Dakota - Vocational Education on Wheels

In the fall of 1973 a vocational education project became operational in sparsely populated Northwestern South Dakota which brings instruction by utilization of nine relocatable, self-contained units in nine schools having a combined total of 1,335 students in grades 9-12. The project's nine transportable classrooms provide vocational education opportunities for students in rural areas where it would not be practical to build programs nor transport students to a central facility.

It is difficult to envision the area served by this occupational-vocational training program until one realizes that its territory covers a land area equal to that of Massachusetts, Connecticut and Rhode Island combined. Prior to the introduction of the mobile units, few or no vocational education courses had been offered by the nine schools and none had a comprehensive program in vocational education.

Through the curricular offerings, which include both adult and secondary vocational education, it is now possible for these rural and rural-isolated students to take nine-week course work in six major areas: (1) general metals, machine, tool operation and welding; (2) building trades of carpentry, masonry, plumbing and residential wiring; (3) electricity/electronics, which covers commercial wiring, industrial electricity, appliance repair and basic electronics; (4) quantity food occupations; (5) agricultural technology, and (6) auto mechanics.

Expanded opportunities will be made available to these otherwise deprived students in sales/distribution, health occupations and animal science/range management. Realizing that gifted and talented students come from the rural areas as well as urban and suburban, James Doolittle, Director of Northwest Area Schools Occupational-Vocational Training Program, believes this project has attracted many academically able students. Many of those who participate in the "vocational education on wheels" program go on for post-secondary training at one of the area Vo-tech programs or technical institutions in North and South Dakota.

This program has been selected because of its exemplary and unique service to rural and rural-isolated students. It provides meaningful knowledge which can be put to productive use and also provides an atmosphere in which students can pursue their interests on an individualized instructional basis. Even though the mobile units are rotated on a quarterly basis, some exposure to vocational education opportunities are provided which will undoubtedly contribute to the student's search for a life satisfying career.

## Somersworth High School - Solar Heating Project

One of the most impressive and exemplary secondary vocational programs in the nation is located in the Somersworth High School at Somersworth, N.H. This small-size community (10,000 population) has a large-size Building-Trades program.

Through a cooperative arrangement with the town government and the highway department the Building Trades students have gained actual work experiences in a number of projects which include digging and installing sewer lines, paving sidewalks, road construction and building everything from baseball dugouts to ballot boxes. All of these activities are offshoots of the regular program which teaches the use of tools and building materials. The students from the advanced classes are given practical experiences in residential plumbing, wiring, heating and carpentry. Both the school program and the community have gained.

Part of the uniqueness of the program in Somersworth comes from the use of heavy equipment. Through sympathetic contractors and state surplus the school has acquired an impressive array of vehicles including a bulldozer, backhoe, crane and other construction equipment. Students use and maintain these vehicles to gain first-hand operator experience in their construction activities.

The truly unique twist added to the Building-Trades program is that of its research and development activities in solar heating. Building-Trades Director Robert Crichton has worked a community-school relationship which allows his student to be involved in the construction of a solar heated municipal fire station. In addition to performing the low-skill labor jobs in wiring, paneling and plumbing, the students are supervising and monitoring the installation of the solar panels.

The basic building was erected by the city under a sub-contract with a regular construction company and the use of students as laborers during the summer. All of the student laborers were in the Building-Trades classes who had been involved in the original planning. These students were hired by the city to perform the low-skill labor tasks. This allowed the students an opportunity for summer employment and to work on the new building process of block-bonding which consists of making dry-block walls that are bonded together with a fiberglassing process, much like that used in stucco-type construction.

After the basic structure was completed, it was turned over to the Building-Trades classes for finish work. Students gain a portion of their course credit in the on-the-job site work. During their junior year the students spend approximately 50% of their time in practical on-site work. This is increased to 60-80% during the senior year and involves all phases of the building-trades skill development.

The construction of the solar heated building incorporates several other unique aspects into the Somersworth vocational education curriculum. An inter-disciplinary unit on solar heating has been added to the regular school curriculum which is taught in a team effort by the vocational education staff and teachers from the math and science departments. Any academically able student can participate in this course which is designed to analyze and compare the strengths and weaknesses of solar heat against conventional systems. Heating capabilities, costs and ease of installation are measured. Students in both the academic program and the Building Trades classes are receiving first-hand knowledge of the design, construction and installation of solar heating units at a time when the interest in solar energy rises with fuel costs.

Norman Yeaton, Vocational Education Director at Somersworth High School, reports that the solar project is merely an addition to an already dynamic and solid program in Building Trades education. He cites several advantages to both the school and the community:

- the cooperative teaching between the vocational staff and the regular math and science instructors
- the involvement in short-term projects which can be monitored and supervised during a nine-week course
- the active school-community relations which are gained by involving students in worthwhile community projects
- the involving of straight academic students in vocational program activities.

"We have our problems too. It is an uphill battle with organized labor and some of the people don't like the idea of employing students during the summer.

"We also have the problem of living with academic tradition which calls for directing an average curriculum at the average student. As long as we aim our programs to the average vocational or academic training level, it will be the student with exceptional ability who suffers. To change this would mean that we would have to provide extra enrichment programs such as the solar heating project. And, that costs money.

"We could attract a lot of high-performance students into vocational education, but the majority of our programs require large blocks of time. Students in the regular academic program are either scheduled too heavily or are unwilling to make that time commitment. We are attracting a few. However, the more capable students should have academic options of taking exploration programs in lesser time blocks."

The solar heating project at Somersworth has been used in reference here to point out the manner in which programs can be enriched and differentiated in a total school program. This solar project, branching out from the regular Building Trades program is the type of blending which must occur between academic and occupational education if the gifted and talented student is to respond to vocational education.

## Brainerd Area Vocational Technical Institute - Natural Resource and Landscape Technology

Capitalizing on its natural setting in the lake regions of Minnesota, the Brainerd Area Vocational Technical Institute is a "fun" place to get a good education. As is true of any area vocational school, there are many occupational opportunities available to the students. The five major areas served are in Agriculture, Business, Health, Sales, and Trades/Industrial programs. There are additional special needs and adult evening programs for the people in the area.

Brainerd AVTI is a complete institution with a wide range of social and athletic activities for its students. The faculty-student interaction is on a personal basis similar to that found in small private colleges. Most students feel that they belong to the school and are its best advertisement.

Several programs at Brainerd utilize the setting to enrich the students' training program. Recreational equipment and sales, for example, provides opportunities for those interested in the out-of-doors activities of skiing, hunting, fishing, snow sports and lake recreation. Minnesota attracts a large number of tourists in all seasons and recreation/leisure activities are both

popular and profitable. The student can combine his/her own personal recreational interest with "hands-on" training with equipment sales and occupational work experience.

The Natural Resource Technology and Landscape Technology programs in the Agriculture Cluster were found to be exemplary examples for this **Guide** in that they appear to be challenging to young men and women interested in helping improve the environment. The course content in either of the occupational choices require extensive work in biology, botony, ecology and conservation. Again, by the very nature of the course work, the program test the abilities of the academically able.

The Natural Resource Technology program is 21 months in length including on-the-job training during the summer months. For a period of approximately 10 weeks following the first year in the program, students are placed in the parks, forests and other recreational sites for training in natural resource conservation. Training is conducted in the interrelated fields of forestry, fisheries, wildlife and park management, all of which flourish in Minnesota. The program attracts students from throughout the nation as well as in the Brainerd area.

Landscape Technology draws upon the natural beauty of the area. Creative students interested in combining the aesthetics of the natural setting and research technology have many opportunities to individualize their program. The 20 month course requires a minimum of 12 weeks in occupational work in one of the many landscape and nursery firms in the region or at locations in the parks, garden centers, golf courses or greenhouse businesses. Home, commercial and public beautification are included in the program.

The Landscape and Natural Resource Technology programs have been cited here because they give a broader perspective to the Agricultural Cluster. Most people are inclined to think in terms of on-the-farm placement when asked about opportunities in agriculture. The program at Brainerd tends to break the stereotype and, at the same time, points toward some of the potential vocational training areas which will attract and challenge the gifted student as he/she pursues a life-satisfying career. As our nation continues to expand its industrial operations, beautification of the land and the conservation and preservation of our natural resources will become increasingly more important.

# CASE STUDIES

In this section of the **Guide** an attempt has been made to present anecdotal discussions of the achievements of gifted and talented persons who have participated in vocational education programs. The cases presented were selected because their job placement has been determined satisfactory at this point in each of his/her life-satisfying career. The case studies were compiled from limited normative data and rely heavily upon the subjective data collected from personal contact with each individual.

The data were gathered as follow-up information from a study of students who had scored in the top percentiles on their ACT tests and had entered vocational training institutions. Each of the selected persons was contacted and asked to provide whatever academic records, anecdotal information and subjective perceptions they could so as to share his/her "story of success" in this guide. An attempt has been made to avoid direct identification of the individuals.

The case-studies were selected to represent patterns of blending different academic and vocational preparation to reach satisfactory job placement. Each individual story also represents a different pathway to success and life-satisfaction through vocational education.
(All quotes are taken from responses to an American College Testing Program Follow-Up Study by the Educational Research and Service Center, University of South Dakota

*THE ROAD NOT TAKEN*

*by Robert Frost*

*Two roads diverged in a yellow wood,*
*And sorry I could not travel both*
*And be one traveler, long I stood*
*And looked down one as far as I could*
*To where it bent in the undergrowth;*

*Then took the other, as just as fair,*
*And having perhaps the better claim,*
*Because it was grassy and wanted wear;*
*Though as for that the passing there*
*Had worn them really about the same,*

*And both that morning equally lay*
*In leaves no step had trodden black.*
*Oh, I kept the first for another day!*
*Yet knowing how way leads on to way,*
*I doubted if I should ever come back*

*I shall be telling this with a sigh*
*Somewhere ages and ages hence:*
*Two roads diverged in a wood, and I –*
*I took the one less traveled by,*
*And that has made all the difference.*

## Mark's Story

At five Mark entered kindergarten where he was considered a quick learner. By the time he enrolled in the first grade he was reading third and fourth grade material with little difficulty. His parents recall that during those early years "he was always inventing things." He invented an "automatic bird feeder" for their backyard, "a burglar alarm" consisting of a coffee can containing some marbles which he attached to his bedroom door with string, and a special hidden compartment under his dresser to keep all of his "secret plans."

At seven he was double-promoted to the third grade. Reading, collecting things and sports were his hobbies. Mark recalls, "It was decided then that I would go to college. I unconsciously accepted that decision and just assumed that I would."

The remainder of Mark's elementary school experience was that of becoming less and less concerned with school and more and more of his interest and activities outside of school. He read extensively in science and science-fiction and had difficulty in maintaining interest in school subjects other than science. He did maintain a good academic record with mostly A's and B's through the junior high school.

Mark's high school record indicates that he worked below his capabilities. Intelligence tests placed him in a range of 130-140 consistently. His achievement test scores steadily decreased in percentile ranking from the seventh grade on. However, he did score in the 95th percentile on the ACT. He maintains that he lacked interest in high school and was content to be a B/C student.

Following high school graduation Mark enrolled as a biology major at the University of Pittsburg and "flunked out" at the end of the second term. "Because of my background and aptitude scores, the small amount of guidance I got directed me toward a conventional college program. A technical school only occurred to me as an alternative after my lack of success at the University of Pittsburg."

"My second start, through a two-year technical school proved to be more satisfying." In the first year of the technical program Mark made the decision to go into Electrical Engineering. "It was due to my success and enjoyment of the electronics technology program that things changed. It captured my interest and caused me to become a straight A student in both the technical program and the following B.S. and M.S. degree programs. I am just completing my program at MIT (M.S. degree) and I will be starting in an engineering position within a few weeks at GTE Laboratories. I feel that this is a direct result of my vocational-technical training back in Pittsburgh."

Mark adds this statement to his story: "Counselors should be aware that technical programs cannot only provide very interesting career skills in a short time, but they can also serve (as in my case) as an introduction to highly technical college educations in cases where direction is needed. Counselors should make themselves aware of the valuable skills

which are available to those pursuing vocational/technical careers. I feel now that there are many technical/vocational careers which could be satisfying. Skills such as welding, auto-body work, precision-machinist, etc. are not to be discounted. I feel that such skills can be highly rewarding, regardless of educational aptitude. There are people, who, like me, enjoy working with their hands, but are never directed toward such careers by their families or counselors due to irrational prejudices."

## Caroline's Story

Looking back over her reaching a life-satisfying career in nursing, Caroline says, "The path to a goal can be very difficult and long. You need to find joy in the struggles of the journey and share your hopes and dreams and NEEDS with others. But, always remember, the individual has the final responsibility of deciding. Others can and will help if possible, but avoid if at all possible hypercritical and/or judgemental persons who would put limits on your potential. Seek out facts, take aptitude tests, interests tests and study the information about yourself and then decide what you want to do."

Caroline had what she describes as a very unstable childhood. Her mother was only 15 when Caroline was born and the family moved many times. Although she did rather well in her school program, Caroline became a high school drop-out at 15 when her mother was emotionally and financially unable to cope with the raising of the family.

After dropping-out of high school, Caroline worked as a car-hop, theatre cashier and long-distance telephone operator. She married at 18 and started her family at 21. After marriage, she worked on the family farm, raised her three children and participated in PTA, church and community activities. Again, conflicting views arose between her and her husband about her desire for an education and her life-long desire to become a nurse. These and other factors led to a divorce after 16 years of marriage. Caroline began working on her own as a nurses' aide and therapy aide.

"After having been a high school drop-out for 19 years, I had a lot of time to make up for, if I were to fulfill my undeveloped potential." She took the ACT and SAT and entered the local community college in science and pre-nursing classes. Holding down a full-time 40 hour a week job, it took her six years to complete the two-year clinical nursing program and gain her AA degree with honors.

"At 12 I wanted to be an obstetrician and tore the medical parts out of some library books for private study. It wasn't till I was 40 that I had my diploma as a nurse and was satisfied to be effective in meeting the health problems of others. I wish I could have started earlier, but our state required a high school diploma to enter nursing. I am thankful for the opportunity I got through vocational education. I'm absolutely happy with my life now."

Caroline's story may be one of persistence and perseverance rather than that of being gifted, but her ACT and SAT scores indicate that she was well above average in ability. She admits that the lack of a high school diploma was influential in "guiding" her into vocational education. However, she believes it was a very desirable alternative.

## Alice's Story

Born and raised in a small mid-western town, Alice went through the traditional education program, was always a high achiever and graduated with honors from her high school. Although her high school program was largely math and science oriented, she did participate in the full home economics program and related activities. She was an active participant in many school and community organizations.

Alice went directly from high school to pursue her baccalaureate degree in mathematics at one of the major universities in her area. As an additional "insurance policy" she gained minimal certification for teaching mathematics at the secondary level. Her practice teaching experience convinced her that she did not want to be a classroom teacher.

Again, Alice was graduated with honors. She found employment on the campus in the computer center and began combining course work and on-the-job training in computer programming.

"I believe I was happy with my work at the

University and I could have stayed there forever, but I really wanted to try something else. I even thought about going into military service. In order to make ends meet, I began 'moonlighting' at a 24 hour restaurant and that's when my life direction began to change."

Alice had always loved to cook. Preparing food for guests and parties was her most enjoyable hobby. At the restaurant, Alice was a "natural born talent" at food preparation and her friends told her she should expand her abilities through vocational training.

As soon as she completed her contract with the University that year, Alice enrolled in a chef's training program at one of the Area Vocational-Technical Schools. "It was a tremendous experience and I really found what I'd wanted to do all my life. I went to college because I was interested in math and science. It wasn't a waste of time or anything and I really liked my job in the computer center. All of that training has helped me many times, too. But, I really enjoyed my year of Chef's Training."

Through the counseling and placement services in the area Vo-Tech School, she was interviewed and subsequently hired to work as an assistant chef in a large restaurant in Minneapolis. In the next three years Alice was given the responsibility for all of the banquet and catering services. She eventually was given the title Head Chef "and that was the biggest day of my life."

Alice's story is not complete. As a person with many interests, talents, abilities and a varied background of training and experience, she will be in the process of becoming the rest of her life. She has experienced life-satisfaction at each successive stage of her career growth and development.

## Kathy's Story

Kathy was the third child in her family having two older brothers and one younger. The boys excelled in sports and she grew up competing in their games - - running, jumping, playing ball and shooting baskets. She liked her brothers and they liked her. Her parents often joined in the ball games and races when the children were in grade school. They were a very close family.

"I grew up in a boys' world and could hold my own in any of their games. When my brothers got older, of course, they started playing on teams such as Little League and football. I was pretty good in tennis, and so everybody did their thing."

Kathy did well in school and had a good academic record throughout all of her school years. She graduated from high school as a straight "A" student and had participated actively in many school organizations. As a member of the high school tennis team, she had been an outstanding player.

"My only real disappointment in high school was that I was not allowed to take an industrial arts course in drafting because it was for boys. It never really upset me too much at the time, but now it makes me mad when I think about it." Because of her interest, demonstrated abilities and success in science and math she was "forcefully guided" into going to college.

Kathy's ACT composite score placed her in the 97th percentile on national norms. "I never really knew what my I.Q. was, or is, but they told me that it was very high. I always did well on tests. So, when they asked me what I wanted to study in college I told them engineering although I don't really know why. I don't really believe I wanted to go to college."

During the summer prior to her senior year she had participated in a six-weeks occupational exploratory and self-assessment program. At that time she had learned about the opportunities in the area Vocational-Technical program and had built up a desire to attend. But, with her academic record and parental pressure she was counseled into going to college. She reluctantly enrolled in an engineering program in the fall after her high school graduation.

Halfway through the first year of the engineering program, she was thoroughly convinced that she did not want to be an engineer, although she was earning straight "A's". Her desires were to be doing things with her hands rather than being involved in the concept-design world of the engineer. She confronted her parents with her plans to change institutions and programs at the end of the first semester. The change was resisted by her parents " . . . because a girl with her talent should be going to an engineering school." The conflict between parents and daughter continued until she gave them her ultimatum, either she change to a vocational-technical program or drop out

of school. At this point, her parents gave-in to her desires.

Beginning the second semester in the two year vocational-technical architectural technology program, Kathy had little difficulty in catching up with the others in the program. Her background in science and math and the courses she had taken while enrolled in the engineering program helped her considerably. She finished the individualized instruction units rapidly and was given advanced placement. Without any difficulty she finished the two-year program in three semesters. After graduating with her associate degree, she accepted a summer internship working as a drafter.

Motivated by her satisfaction with the two-year vocational-technical program and work experience, Kathy got a job as a draftsman and at the same time decided to pursue a degree program in the area of architectural technology. After two years, she again became a full-time student.

As a senior, she was selected to work as a teaching assistant. "Because I had some practical experience, I think I was able to help the other students better." After graduation, she accepted employment with an architectural-engineering firm which immediately placed her to work as their on-site construction supervisor.

Kathy is married now and has successfully combined marriage and her career with the architectural-engineering firm. "I don't believe I am a gifted or talented person, but I know I am happy with what I have done."

In response to questioning about vocational guidance she says, "allow the student to make up his own mind. Don't tell him that with his I.Q. and ability he should do this or that. If, while still in high school he wants to work as soon as he completes school or go to a vocational school, respect his decision. Once he is in the job market and finds opportunities which would be better with further schooling, he will return."

Kathy's story is one of personal fulfillment. She is gaining a life-satisfaction through employment and an educational-occupational training that met her personal desires.

## Tim's Story

While enrolled in a medium-size population high school, Tim was considered an average to above-average student. He managed to get by and graduate from a general education program. When he looked toward his future with uncertainty, he was counseled into a vocational program "to learn a trade." He enrolled in vocational education with the intention of completing a two-year electronics program which would prepare him for employment.

Throughout his grade and high school program, both his parents and several of his teachers expressed the feeling that Tim was capable of maintaining a higher academic record. His intelligence tests indicated that he had an I.Q. of "better than 130" and he tested in the 95th percentile on the ACT tests. No outstanding achievements were noted in any of the activities in which he participated including athletics.

During his post-secondary experiences, he soon began to demonstrate qualities indicative of a gifted and talented person in intellectual, academic, and leadership abilities. At the outset of his post-secondary educational experience, Tim displayed a positive attitude and soon demonstrated academic abilities with a 3.39 grade point average upon completion of the first semester and a 3.78 in the second (based on 4.0 scale for "A"). With self-confidence, Tim then excelled the next two semesters to receive straight "A's" and finish the two-year associate degree program with honors by graduating Summa Cum Laude. The course work selected by Tim to accomplish his goals were the most challenging and difficult that he could enroll in. He also enrolled and completed courses that were not required of him to graduate to thus broaden his background.

Tim's behavior was defined by instructors as "very subtle" but demonstrating effective leadership qualities of a quiet person. He constantly persisted in searching for truth and accurate solutions to many complex problems in his work. Tim was also very sensitive to others around him and moved forward spontaneously to provide quiet leadership in outside-class activities. He articulately designed floats and actively participated in homecoming events, along with commitment and contribution to

the organization of an electronics club which successfully began a broadcasting station located on the campus for student operation and broadcasting experience.

Upon completion of his two-year associate degree program, Tim entered employment as an electronics technician repairing and maintaining transmitting and receiving equipment.

"I went to vocational-technical school thinking that I could get training to find a job, but I also was convinced that I didn't stand too much of a chance in college. I think the high school counselors were not doing an adequate job of telling students of the opportunities that were available after graduation. They really put down anything except college and they told me I'd have a rough time there. They told me I could choose between vocational school and going into the military services."

Searching for personal satisfaction toward his career, Tim decided to return to school. He completed a Bachelor of Science in Vocational Teacher Education, graduating Summa Cum Laude. Upon completion of the bachelor's degree, Tim continued his studies at a large university to receive a master's degree in Industrail Education. Today, Tim is an instructor in electronics technology in a Vocational Education Area School and is highly respected by his students and fellow staff members, who turn to him for leadership.

Thus, a gifted and talented person, identified when enrolled in vocational education, was allowed to find self-satisfaction and achievement. These experiences afforded Tim the opportunity to progress through educational and industrial experiences and contribute successfully toward the education of others through vocational education.

# RESOURCE LISTINGS

## Professional Organizations for Vocational and Technical Education

**American Association of Community and Junior Colleges**
Suite 410
One Dupont Circle
Washington, D.C. 20036

**American Technical Education Association**
Mr. Odin Stutrud, Executive Secretary
North Dakota State School of Science
Wahpeton, ND 58075

**Institute for Certification of Engineering Technicians**
Joseph M. Snarponis, Exeuctive Secretary
2029 K Street, N.W.
Washington, D.C. 200006

**Technical College Council and Engineering Technology Division**
American Society for Engineering Education
Suite 400
One Dupont Circle
Washington, D.C. 20036

**American Vocational Association**
Mr. Lowell A. Burkett, Executive Director
1510 H Street, N.W.
Washington, D.C. 20005

The AVA had a membership of 52,431 during fiscal year 1976. The Association's activities relate to all vocational education service areas and ancillary functions. The **American Vocational Journal** is the Association's major avenue of communication with the members. It is published on a monthly basis.

The American Vocational Association is composed of twelve divisions:

- Administration
- Agriculture
- Business and Office
- Distributive
- Guidance
- Health Occupations
- Home Economics
- Industrial Arts
- Manpower
- New and Related Services
- Technical
- Trades and Industrial

AVA is the major association for vocational education and is dedicated to the advancement of professional vocational educators. The membership seeks to make vocational educators, whether working in universities, area vocational schools, technical or community colleges, state departments and divisions, or local high schools the vanguard of educational thought and practice.

**National Association of Trade and Technical Schools**
2021 L Street, N.W.
Washington, D.C. 20036

**Technical Education Research Centers, Inc.**
44 Brattle Street
Cambridge, MA 02138

**The Center for Vocational Education**
Ohio State University
1960 Kenny Road
Columbus, Ohio 43210

The Center for Vocational Education (CVE) located at the Ohio State University at Columbus is dedicated to improving and increasing the quantity and quality of vocational, technical and career education programs throughout the nation. Beginning in 1965, the Center provides services in guidance, curriculum development, occupational information, and adult education. The CVE information services are nationally known and include a research library with information retrieval

capabilities for the listing of ERIC documents and microfiche. The Center has provided extensive leadership in the areas of vocational education and vocational guidance. In September of 1976 the CVE began operation of the ERIC Clearinghouse on Career Education (ERIC/CE) under a contract with the National Institute of Education which will enhance its information network services. One of its major publications is the **Centergram** which is published monthly and provides information on current vocational and career topics, announcement of national meetings, and listings of new publications.

## National Organizations for the Gifted and Talented

**The Association for the Gifted (TAG)**
The Association for the Gifted
The Council for Exceptional Children
1920 Association Drive
Reston, Virginia 22091
(703) 620-3660

A division of the Council for Exceptional Children since 1958, TAG plays a major part in helping both professionals and parents deal more effectively with the gifted and talented. TAG conducts annual national and regional conferences and provides current information to members and affiliate organizations.

**National Association for Gifted Children**
National Association for Gifted Children
R. R. 5
Box 630-A
Hot Springs, Arkansas 71901

A professional organization with membership open to parents, the NAGC conducts training and consultation inservice events for schools. The organization also holds an annual conference and publishes **The Gifted Child Quarterly.**

**Gifted Children Research Institute**
Gifted Children Research Institute
Suite 4-W
300 West 55th Street
New York, New York 10019
(212) 541-7059 and 957-5145

The institute conducts conferences, publishes newsletters, and disseminates papers related to the education of the gifted and talented.

**The American Association for the Gifted**
The American Association for the Gifted
15 Gramercy Park
New York, New York 10003
(212) 473-4266

This organization consists of a small group of professional personnel who meet annually to discuss the the various problems facing the education of the gifted. They have assisted in the publication of various texts and articles in the field.

**National Association for Creative Children and Adults**
National Association for Creative Children
and Adults
8080 Spring Valley Drive
Cincinnati, Ohio 45236
(513) 631-1777

The NACCA seeks to aid in the development of the creative potential of gifted and talented children and to foster closer relationships between the creative young and creative adults.

**The Council of State Directors of Programs for the Gifted**
The Council of State Directors of Programs for the
Gifted
Ms. Joyce Runyon, President
Florida State Department of Education
319 Knott Building
Tallahassee, Flordia 32304
(904) 599-5807

The council is a professional organization of educators and administrators of programs for the gifted and talented.

**National/State Leadership Training Institute N/S LTI**
National/State Leadership Training Institute on the
Gifted and The Talented
316 W. Second St., Suite PH-C
Los Angeles, California 90012
(213) 489-7470

The N/S LTI provides leadership training for each state and is the major funded gifted and talented organization.

# STATE CONSULTANTS AND CONTACT PERSONS FOR GIFTED AND TALENTED EDUCATION

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*Percentages indicate time alloted to gifted education

Please communicate any corrections or additions to N/S LTI-G/T, 316 West 2nd St., PH C, Los Angeles, California 90012, (213) 489-7470

# National Organizations for Guidance and Counseling

## The American Personnel and Guidance Association (APGA)

The American Personnel and Guidance Association
1607 New Hampshire Avenue, N.W.
Washington, D.C. 20009

The APGA represents more than 41,000 members and embraces 12 national division and 52 state branches. The association's activities cover counseling and guidance work at all educational levels, from kindergarten through higher education, and in community agencies, government, business/industry and corrections.

The 12 special interest divisions are:

* **American College Personnel Association (ACPA)**
  The collective voice of the college student profession - - teachers, counselors, deans, department heads, researchers. Membership is open to graduate students. Publication: **The Journal of College Student Personnel.**

* **Association for Counselor Education and Supervision (ACES)**
  This division emphasizes the need for highly skilled guidance and personnel workers in efforts to improve counselor education and supervision at all levels of education, rehabilitation and employment settings. Publication: **Counselor Education and Supervision; ACES Newsletter.**

* **National Vocational Guidance Association (NVGA)**
  A group concerned with the life-long use of people's knowledge, abilities and skills. NVGA seeks to gain recognition and status for the profession of counseling and to improve skills, systems and standards of service in vocational counseling. Publications: **The Vocational Guidance Quarterly; NVGA Newsletter.**

* **Association for Humanistic Education and Development (AHEAD)**
  This division seeks to provide a forum for the exchange of information about humanistically oriented educational practices and to promote changes in education which reflect the growing body of knowledge about human development and potential. Publication: **The Human Educator.**

* **American School Counselor Association (ASCA)**
  A division which works to define and advance the role of the school counselor at all educational levels, elementary through post-secondary, and to achieve national recognition for this important function in education. Publications: **The School Counselor; Elementary School Guidance and Counseling; ASCA Newsletter.**

* **American Rehabilitation Counseling Association (ARCA)**
  The rehabilitation counselor works with physically, mentally or emotionally handicapped people and links the practitioner with a nationwide of rehabilitation counselors. Publication: **Rehabilitation Counseling Bulletin.**

* **Association for Measurement and Evaluation in Guidance (AMEG)**
  AMEG members plan, administer and conduct testing programs; provide test scoring services; interpret and use test results; and develop evaluation instruments. Publications: **Measurement and Evaluation in Guidance; AMEG Newsnotes.**

* **National Employment Counselors Association (NECA)**
  A division which offers professional leadership to people who counsel in an employment setting or to those employed in related areas of counselor education, research administration or supervision in business and industry, college and universities and federal and state governments. Publication: **Journal of Employment Counseling.**

* **Association for Non-White Concerns in Personnel and Guidance (ANWC)**
  A group seeking to eliminate prejudice and discrimination by defending those human and civil rights which have been secured by law. ANWC is dedicated to the insurance of equality as regards to treatment, advancement, qualification and status of non-white individuals in personnel and guidance work. Publications: **Journal of Non-White Concerns in Personnel and Guidance: ANWC Newsletter.**

* **National Catholic Guidance Conference (NCGC)**
  A special interest group promoting counseling and guidance services in parochial and nonpublic schools. Publication: **Counseling and** [illegible]

* **Association for Specialists in Group Work (ASGW)**
  A division for workers in education, mental health, physical health, offender rehabilitation,

religion and the human potential movement who share a common interest in group work. No publication to date.

- **Public Offender Counselor Association (POCA)** POCA is concerned with the delivery of effective counseling services to public offenders and is committed to providing leadership in developing public offender counseling as a profession. No publication to date.

APGA Publications: **Guidepost** (the official APGA newspaper); **Personnel and Guidance Journal**; more than 150 titles available from APGA Press, the publishing arm of the Association.

## Directors of Regional Vocational Curriculum Coordination Centers

Dr. James Becket, Director
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Department of Education
721 Capitol Mall
Sacramento, California 95814

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225 West State Street
Trenton, New Jersey 08625

Midwest Curriculum Director Coordination Center
State Department of Vocational and
Technical Education
1515 West 6th Avenue
Stillwater, Oklahoma 74074

Mr. James L. Blue, Director
Northwestern Curriculum Coordination Center
Commission for Vocational Education
222 Airdustrial Park
Box 17
Olympia, Washington 98504

# Annotated Bibliography


Amberson, Max L., Douglas Bishop, and Barbara Agocs. A STUDY TO DETERMINE COMPETENCIES NEEDED BY EMPLOYEES ENTERING AGRICULTURAL PRODUCTION OCCUPATIONS. Bozeman, MT: Montana State University, 1973.
Includes analysis in Montana of competencies of various agriculture production occupations (general farm worker, irrigation, artificial insemination, forestry, horticulture, and others).

_____, and others. A STUDY TO DETERMINE COMPETENCIES NEEDED IN SELECTED JOB TITLES IN AGRICULTURAL PRODUCTS OCCUPATIONS. Bozeman, MT: Montana State University, 1974.

Anastasi, A., and C. E. Schaefer. "Note on the Concept of Creativity and Intelligence," JOURNAL OF CREATIVE BEHAVIOR. 5 (2): 113-116, 1971.

ANNOTATED BIBLIOGRAPHY OF CURRICULUM MATERIALS IN VOCATIONAL AND CAREER EDUCATION. Springfield, IL: State of Illinois, Board of Vocational Education and Rehabilitation Division of Vocational and Technical Education, no date.
A listing of curriculum materials developed throughout the U.S. Includes description, title, author, types of materials, cost, copyright and other information.

AN ANNOTATED BIBLIOGRAPHY OF INSTRUCTIONAL MATERIALS IN COOPERATIVE OCCUPATIONAL EDUCATION. Springfield, IL: State of Illinois, Board of Vocational Education and Rehabilitation, Division of Vocational and Technical Education, 1974.

Anzalone, Patricia. "Organizing Your Day Around Individuals," INSTRUCTOR, 77:64, June-July, 1968.
This article gives ideas on how to plan a summer school program geared to the ideal individual needs of gifted children. It includes interest center ideas (research, mathematics discovery, science inquiry, creative language, fine arts) day-by-day planning, one-to-one relationships, and planning the schedule.

Axtel, Juan, and Robert M. Joesting. "Mensa Organization for the Gifted," GIFTED CHILDREN NEWSLETTER, 9:9-14, March, 1967.

Baker, Henry G. "Management of the Gifted Child Family," THE GIFTED CHILD QUARTERLY, 10:101-104, Summer, 1966.
This article relates the author's own personal family experiences as to raising gifted children. He advises parents to exploit their children's talents, but taking care to insure that they are providing self-actualization for the child and not ego-building and pride-building for the parent.

Baldwin, Alexinia. INSTRUCTIONAL PLANNING FOR GIFTED DISADVANTAGED CHILDREN. Connecticut University. National Leadership Institute - Teacher Education/Early Childhood. September, 1973. (ED 082 425).
Discussed is instructional planning for gifted disadvantaged children with emphasis placed on appropriate teaching strategies and learning activities.

Bishop, Douglas, Max L. Amberson, and Barbara Agocs. A STUDY TO DETERMINE COMPETENCIES NEEDED IN SELECTED JOB TITLES IN AGRICULTURAL RESOURCES OCCUPATIONS. Bozeman, MT: Montana State University, 1974.
To obtain information to identify knowledges, skills, and attitudes needed in people selecting Agricultural Resources occupations. Job titles of Civil Engineering Technician, Soil Conservation Technician, Dairy Herd Improvement Supervisor, and Lay Food Inspector are included.

Bishop, Douglas, Max L. Amberson, and Barbara E. Richardson. A STUDY TO DETERMINE COMPETENCIES NEEDED BY EMPLOYEES ENTERING AGRICULTURAL MECHANICS OCCUPATIONS. Bozeman, MT: Montana State University, 1973.
A study to determine competencies needed in Agri-Business by employers in Montana. Includes areas such as manager, salesman, technician, mechanics and others.

Bishop, William E. "Successful Teachers of the Gifted," EXCEPTIONAL CHILDREN, 34:317-325, January, 1968.
The purpose of this study was to analyze selected characteristics of high school teachers who were identified as successful by intellectual high achieving students. The gifted identified the "best" teachers as those who had higher I.Q.'s, higher level of cultural interest, a desire for intellectual growth, student centered permissive educational viewpoint, a concern for their pupils, enthusiasm, and maturity.

Bode, Richard. "My Son, the Carpenter," READER'S DIGEST, p. 79-80, August, 1976.
A short anecdote about a father who with his biases finally realizes that his son must do what motivates his own desires.

Boston, Bruce O. GIFTED AND TALENTED: DEVELOPING ELEMENTARY AND SECONDARY SCHOOL PROGRAMS. Reston, VA: The ERIC Clearinghouse on Handicapped and Gifted Children, The Council for Exceptional Children, 1975. (Also, ED 117 886).
Boston has edited articles on program planning for the gifted from selected

authors. Also listed are current publications on education of the gifted and talented and a topical bibliography.

Boston, Bruce O. RESOURCE MANUAL OF INFORMATION ON EDUCATING THE GIFTED AND TALENTED. Reston, VA: The ERIC Clearinghouse on Handicapped and Gifted Children, Council for Exceptional Children, 1975. (Also, ED 117 885).

Provides up-to-date listings on federal, national and state agencies, films, topical bibliographies. Selected authors present their views on the State of the Art in Gifted Education.

Broderick, Mary. "Creativity in Children: Some Case Studies," THE NATIONAL ELEMENTARY PRINCIPAL, 46:18-24, November, 1966.

Four case studies that explore important dimensions of individual differences among creative students and offer implications for the education of other creative youth.

BUSINESS AND OFFICE OCCUPATIONS CLUSTER: INTRODUCTION TO VOCATIONS. New Brunswick, NJ: Department of Education, Division of Vocational Education, Curriculum Laboratory, Rutgers State University, 1975.

Based around career education this document provides information for business and office occupations cluster. Included are areas of administration, business ownership, clerical records systems, secretarial jobs to be implemented in classes.

Campbell, David and Gary Kush. PLANNING AND OPERATING AN INDIVIDUALIZED LEARNING CENTER. U.S. Educational Resources Learning Center, (ED 097 879), 1974.

This document lists the sources available on information about self-instructional materials for developing individualized instruction units.

CAREERS IN COMMUNICATIONS MEDIA - INSTRUCTOR GUIDELINE. Salem, OR: Oregon State Department of Education, 1975.

Containing information on communications media cluster such as job titles and curricula for careers covering curriculum design, career awareness orientation, exploration, occupational preparation and more.

Cotrell, Calvin J., Gary R. Bice, eds. THIRD ANNUAL NATIONAL VOCATIONAL-TECHNICAL TEACHER EDUCATION SEMINAR PROCEEDINGS - MICRO-TEACHING AND VIDEO RECORDINGS. Columbus, OH: The Center for Vocational and Technical Education, Ohio State University, 1970.

Presented in three parts, general sessions, laboratory studies, field testing-pre-service programs and field testing-in-service programs. Presentations by a number of experts in the educational fields concerning teacher education and teaching.

COUNCIL FOR EXCEPTIONAL CHILDREN, GIFTED AND TALENTED RESEARCH: A SELECTED BIBLIOGRAPHY. Exceptional Child Bibliography series 639. November, 1973. (ED 090 723 - EC 061 765).

Many abstracts of materials published (most frequently) in the middle 1960's concerning Gifted, Exceptional Child, etc.

CURRICULUM GUIDES: A SELECTIVE BIBLIOGRAPHY. p. 31, July, 1972. (ED 065 959).

Selected bibliography of curriculum guides for handicapped and gifted children. Contains about 100 entries from files of Council for Exceptional Children Information Centers.

Davis, Gary A. and Joseph A. Scott. TRAINING CREATIVE THINKING. New York: Holt, Rinehart & Winston, Inc., 1971.

Book examines various strategies for increasing creative productivity, particularly in industry and schools. Contains writings from authors including Torrance, Tom Comella, Frank Barron, and Donald W. Mackinnon.

Durr, William K. "Let's Not Neglect the Gifted," INSTRUCTOR, 79:59, April, 1970.

Article stressing the need to seek out gifted children from all socio-economic groups and educate all gifted to their highest potential; gives eight practical ideas for classroom use with the gifted.

EDUCATIONAL MEDIA TECHNICIAN: A SUGGESTED TWO-YEAR POST HIGH SCHOOL CURRICULUM. Lexington, KY: Curriculum Development Center, University of Kentucky, Washington, DC: Superintendent of Documents, U.S. Government Printing Office, 1975.

A suggested two-year post-secondary program which includes faculty, equipment, curriculum, course outlines, facilities, and bibliography.

EXPLORING CAREERS IN FINE ARTS AND HUMANITIES-A GUIDE FOR TEACHERS. Lexington, KY: Curriculum Development Center, Vocational Education, University of Kentucky, 1974.

Breakdown of the Fine Arts and Humanities into more manageable units for career education. Includes areas of drawing, design, painting, jewelry, textiles, etc.

Finch, Curtis R. "Individualizing Instruction: What Can You Learn From Research?" AMERICAN VOCATIONAL JOURNAL, pp. 28-29, September, 1974.

Fliegler, Louis A., ed. CURRICULUM PLANNING FOR THE GIFTED. Englewood Cliffs, NJ: Prentice Hall, Inc., 1961.

Includes basic curriculum problems, principles of curriculum construction, programming and administrative provisions for teachers and curriculum specialists.

Frobose, Denise C. HANDBOOK OF CAREER INFORMATION RESOURCES. New Brunswick, NJ: Vocational-Technical Curriculum Laboratory, Rutgers State University, 1974.

Frost, Robert. SELECTED POEMS OF ROBERT FROST. New York: Holt, Rinehart & Winston, 1963.

Gallagher, James J. RESEARCH SUMMARY ON GIFTED CHILD EDUCATION. Springfield, IL: Office of Superintendent of Public Instruction, 1966.
Includes characteristics of gifted children, highly creative child, underachieving gifted, research results, and personnel needed to work with gifted children.

_____. TEACHING THE GIFTED CHILD, 2d ed. Boston: Allyn and Bacon, Inc., 1975.
The foremost textbook on teaching the gifted student. The author presents information on defining the gifted, identification processes, characteristics of giftedness, and programming for the gifted in a number of academic areas. Also included are sections on teaching strategies, administration of gifted programs and special problem areas in working with the gifted student.

_____. TEACHING GIFTED STUDENTS: A BOOK OF READINGS. Boston: Allyn and Bacon, Inc., 1964.
A book of readings covering definition and identification, curriculum modifications, teaching method changes, and special problems. Emphasis on a variety of curriculum changes and pedagogical changes that can be implemented for gifted students.

Georgiadly, Nichols. TEACHER ATTITUDES TOWARDS VOCATIONAL EDUCATION. Oxford, OH: Miami University, 1972.
A study and activity to foster awareness of teachers to vocational education, examining their own attitudes, developing curricula, identifying instructional materials, developing resources for instructor's use to field test curricula and other topics.

"Gifted and Talented Curriculum: A Selective Bibliography," EXCEPTIONAL CHILD BIBLIOGRAPHY. Series No. 656. Reston, VA: Council for Exceptional Children, April, 1974.
Annotated curriculum for gifted/talented from 1961-1973 development of programs, etc.

Goodland, John I., Renata Von Stoephasius, and M. Frances Klien. THE CHANGING SCHOOL CURRICULUM. New York: The Georgian Press, Inc., 1966.
Represents an analysis of curriculum materials used in the schools and summarizes the shaping forces, characteristic features and strengths and weaknesses of the curriculum reform. A good overview of methods and materials and approaches that are in use in gifted education programs.

Gowan, John C. "The Academically Talented Student and Guidance." Series V, GUIDANCE AND THE EXCEPTIONAL STUDENT. New York: Houghton, Mifflin & Co., 1971.

_____. DEVELOPMENT OF THE CREATIVE INDIVIDUAL. San Diego: Robert R. Knapp, 1972.

HANDBOOK FOR TEACHERS OF CLASSES FOR GIFTED, IN: Indianapolis Public Schools, 1963. (ED 001 196).

Havelock, Ronald G. A GUIDE TO INNOVATION IN EDUCATION. Ann Arbor, MI: Institute for Social Research Center for Research of Utilization of Scientific Knowledge, The University of Michigan, 1970.

_____. PLANNING FOR INNOVATION THROUGH DISSEMINATION AND UTILIZATION OF KNOWLEDGE. Ann Arbor, MI: Institute for Social Research, Center for Research on Utilization of Scientific Knowledge, The University of Michigan, 1969.

Hill, Thomas B. "Whatever Happened to the Gifted?" EDUCATIONAL FORUM, 36 (3): 323-326, March, 1972. (EJ 055 651).

Hopke, William and others. ENCYCLOPEDIA OF CAREERS AND VOCATIONAL GUIDANCE, VOL I, PLANNING YOUR CAREER. Chicago: J.G. Ferguson Publishing Co., 1972.
Various career fields listed and explanations of each included. Also included in this volume are topics of career choice, where to go for further information, using test results in vocational planning, how to find a job, the future world of work, and specific career fields.

Hopke, William and others. ENCYCLOPEDIA OF CAREERS AND VOCATIONAL GUIDANCE, VOL. II, CAREERS AND OCCUPATIONS. Chicago: J.G. Ferguson Publishing Co., 1972.
Includes definitions, history, nature of work, requirements, opportunities for experience and exploration, advancement, employment outlook, earnings, conditions of work, sources of additional information for a number of occupations.

Hoyt, Kenneth B., and Jean R. Hebeler, eds. CAREER EDUCATION FOR GIFTED AND TALENTED STUDENTS. Salt Lake City, UT: Olympus Publishing Co., 1974.
Content includes the Gifted and Talented: Current status and approaches, career development programs, exemplary programs in career education for the Gifted and Talented and other topics evolving around Career Education and Gifted/Talented Students.

INTERPRETATION OF LITERATURE ON CAREER LADDERS AND LATTICES IN HEALTH OCCUPATIONS EDUCATION. Columbus, OH: ERIC Clearinghouse on Vocational Education and Technical Education. The Center for Vocational and Technical Education, Ohio State University, 1970.

Issacs, Ann F. "What To Do When You Discover A Child Is Gifted and Is Interested In Science: Ninety-Nine Ways To Tickle Your Fancy With Science," GIFTED CHILD QUARTERLY, 14 (4):259-263, Winter, 1970. (EJ 036 964).

Jacobs, Jon C. "Teacher Attitude Toward Gifted Children," GIFTED CHILD QUARTERLY, V16, N1, pp. 23-6, Spring, 1972.

A specially designed test was developed to use in determining the attitudes of teachers of gifted and talented.

Joesting, Joan, and Robert Joesting. "Future Problems of Gifted Girls," THE GIFTED CHILD QUARTERLY, 14:82-90, Summer, 1970.

Discussion of problems that will face gifted girls. It includes vocations being picked by extraneous circumstances instead of qualifications, lack of opportunity for girls, inhibiting forces against motivation, discrimination for education and jobs. The article concludes with suggestions for counselors of gifted girls.

Jungel, George. VOCATIONAL LEADERSHIP DEVELOPMENT: A CURRICULUM GUIDE. Olympia, WA: Coordinating Council for Occupational Education, 1974.

A developed curriculum including general course outline, student objectives, topics for study and discussion, activities, references. Units include defining leadership, club manual, local constitution, effective conduct of meetings, preparing and presenting talks, ten commandments of a good leader and others.

Kaplan, Sandra N. PROVIDING PROGRAMS FOR THE GIFTED AND TALENTED: A HANDBOOK. Ventura, CA: Office of the Ventura County Superintendent of Schools, 1974.

This document was prepared in cooperation with the National/State Leadership Training Institute on the Gifted and Talented and the ERIC Clearinghouse on Handicapped and Gifted. It is a very valuable resource on developing programs, enrichment activities and differentiating learning activities.

Keeton, Martha, Elsie Kennedy, and Tom Vantreese. EXPLORING CAREERS IN COMMUNICATIONS AND MEDIA. Lexington, KY: Curriculum Development Center, Vocational Education, University of Kentucky, 1974.

A guide for teachers which includes definition of the Communication and Media cluster, exploration, educational opportunities, and evaluation of self in relation to a career in Communication and Media cluster.

Keller, Franklin J. PRINCIPLES OF VOCATIONAL EDUCATION. Boston, MA: D.C. Heath and Company, 1948.

First known treatment given to teaching the precocious (gifted) student in vocational education. Keller advanced the thesis that through vocational training these students would make positive contributions to society.

Kennedy, Elsie. CAREER PREPARATION: SUGGESTIONS FOR TEACHERS. Lexington, KY: Curriculum Development Center, Department of Vocational Education, no date.

Khatena, Joe. "Creative Imagination and What We Can Do To Stimulate It." Paper presented at National Association for Gifted Children (Chicago, October 24, 1975) (ED 116 430).

Suggested ways to stimulate imagination, creativity and imagery of children.

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Comments from members of FBCA, OEA, FHA, VICA concerning how youth groups have been of benefit to themselves and others.

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Materials cover patterns in developing of curriculum, selected areas for development, course construction, testing results, establishing technical curriculum, and more.

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Anecdote of gifted/talented child who has an I.Q. of 200 who is born to parents of average home - father is a music instructor. His determination has kept him alive after a bout with leukemia. Included is the difficulty the Hall's have in attempting to find a school which will allow Joe a challenge in learning.

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Teacher Of The Gifted," GIFTED CHILD QUARTERLY, 1:194-201, Winter, 1965.
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Eight practical ideas for gifted high school students to use for continuing their intellectual growth: 1) Learn outside the curriculum, 2) Associate with some research project, 3) Organize a school for younger children, 4) Associate with some community project, 5) Enter talent or achievement competition, 6) Join other gifted young people, 7) Take time for a break, 8) Become an expert at something.

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"We Know Enough To Teach More Creativity Than We Do." THE GIFTED CHILD QUARTERLY, 9:59-63, Summer, 1965.
Article gives 20 clues for increasing classroom activity.

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Accounts of various school systems across the United States who have failed their gifted pupils. The authors use actual remarks and reactions of the students themselves to stress urgent need for strong program for the gifted.

TRAINING PLANS: A GUIDE FOR THE ESTABLISHMENT OF TRAINING PLANS FOR COOPERATIVE VOCATIONAL EDUCATION PROGRAMS. Olympia, WA: Curriculum Management Center Library, Building 17, Airdustrial Park, 1974.

A document to provide Cooperative teacher-coordinators with training plan materials. Included in definition of training plans, developing training plans, using training plans, and evaluation. Training agreement forms are also included in this document.

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A handbook which lists and defines jobs currently in the American economy. It is aimed at personnel engaged in placement, counseling, and related activities and for others concerned with use of occupational information in vocational, personnel and related services and activities. The Dictionary contains descriptions of many occupations.

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Complement to Volume I. Volume II groups jobs having the same basic occupational, industrial, or worker characteristics to help the user disconcern relationships among occupations; is a standard approach to classifying the abilities, vocational experiences, and potentials of workers.

U.S. Department of Labor. OCCUPATIONAL OUTLOOK HANDBOOK, 1976-77 ed. Washington, DC: U.S. Printing Office, 1976.

A handbook which contains information about many occupations which includes tomorrow's jobs and outlook for the future in various occupations.

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A guide that was developed through an Environmental Education Institute held at University of Wisconsin Center - Fond du Lac. The guide includes procedures and guidelines of incorporating environmental education in vocational education.

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VIEW (Vital Information for Education and Work). Columbia, SC: Department of Education, South Carolina, 1975.

Information containing careers, job descriptions, qualifications for particular occupations, preparation requirements, future projections, salaries, working hours, and sources of additional information concerning specific jobs.

VIEW (Vital Information for Education and Work). Pierre, SD: Division of Vocational and Technical Education, 1975.

Information containing careers, job descriptions, apprenticeship programs, job opportunities, etc. for education and work. Occupational clusters, containing job information are developed on microfiche.

"Vocational Youth In A Contemporary Society: What They Are Saying And Doing," AMERICAN VOCATIONAL JOURNAL, pp. 24-33, March, 1974.

Comments from students (not identified as gifted/talented) concerning vocational education. Subjects include facing future with confidence. Vocational students are willing to reach out; we shouldn't leave our skills at the office, etc.

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Discusses factors pertinent to adaptation of Vocational-Technical curriculums to local school systems. Strategies to implement change, with relationship among personnel is involved.

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White, M. Judson. "The Case For Specifically Designed Education For The Gifted," THE GIFTED CHILD QUARTERLY, 14:159-162, Autumn, 1970.

Discussion of problems of providing specifically designed education for the gifted. The author divides the problems into three phases: identification, education and utilization.

WHAT IS TALENT? Guidance Associates gets at the question of talent in their new full-color, sound filmstrip program, "Making the Most of Your Talents." The package includes 69 filmstrips which can be used in a K-12 career education program. Order brochure and preview information: Guidance Associates, 757 Third Ave., New York, NY 10017.

CAREER RESOURCES: National Career Information Center, 1607 New Hampshire Avenue., NW, Washinton, DC 20009 (this organization offers the following publications: INFORM, a monthly newsletter identifying accurate, relevant career information sources and dissemination techniques for the active counselor. Special emphasis will be placed on materials that normally do not come to the counselors office and those presenting information on new and emerging careers. The second publication is the CAREER RESOURCE BIBLIOGRAPHY--special supplements with selected educational and occupational sources for career cluster areas--agriculture, construction, personal services, etc. A new bibliography is issued each month. ($25.00 per year for non-members of American Personnel and Guidance Association and $15.00 a year for members of APGA).

MEDIA CAREER PACKAGE: Uncommonly thought of careers and the people who do this work are the subjects of a series of filmstrips and accompanying cassettes produced by Houghton Mifflin. The 15 career clusters of the USOE and the user's guide were developed by Dr. S. Norman Feingold, APGA President and Director of B'nai B'rith Career and Counseling Services. For additional information, contact: "Livelihoods: Careers for your Lifestyle", Houghton Mifflin, One Beacon Street, Boston, MA 12107.

JOB BANK: To detemine the availability of Job Bank in your state or region, contact Division of Manpower Matching Systems, U.S. Employment Service, Manpower Administration, U.S. Department of Labor, Washington, DC 20213 (202) 376-6350.

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